G. Elisabeta Marai

Dec 2024

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Research Overview

Research in human-centered data science, with a focus on visual computing, an area of computing that handles images, 2D/3D models and the interaction between humans and data that can be represented visually. Emphasis on automated techniques, computational representations, and theoretical principles for scientific modeling and data visualization.

Education

Ph.D., Computer Science, Brown University, 2007.
Data-Driven Predictive Modeling of Diarthrodial Joints
Research in computer graphics and visualization for biological applications. Created novel computational modeling, visualization, and analysis tools which are needed to model anatomical joints and their variation with disease progression.

Sc.M., Computer Science, Brown University, 2001.
Estimating Ligament Lengths from Bone Kinematics and Surfaces

M.S., Computer Science & Electrical Engineering, Politehnica University, Romania, 1998.
KQML – Communication among Intelligent Agent Systems

B.S., Computer Science & Electrical Engineering, Politehnica University, Romania, 1997.
Time-delay Neural Network System for Speech Recognition

Experience and Appointments

Current:

Professor, Department of Computer Science, University of Illinois Chicago
Aug 2022 – current.
University of Illinois Scholar 2023-2026.
Computational research into the theory and practice of visual computing, with practical applications in science and engineering. Multiple outstanding research honors, including a Test of Time Award and a University Scholar award across the three campuses (Chicago, Springfield, Urbana). Faculty Fellow of the Year in the Honors College. Specific research projects include: visual data science, computational oncology, biological image analysis, theoretical foundations of data visualization, explainable machine learning, HPC ensemble visual analysis, biomedical visualization.
Project management (multi-site), fund raising, grant management (multi-$M), interdisciplinary collaboration, public communication, results dissemination, software engineering, software deployment, teaching, advising, mentoring, committee steering and chairing, graduate admissions directing, reviewing.

Director, Institute for Equitable Health Data Science Research, University of Illinois Chicago
Feb 2024 – current
Founder and Director (with Andrew Boyd) of an interdisciplinary institute that combines healthcare and data science research across the two UIC campuses (medical and non-medical). Research teams spanning multiple colleges pursue innovative and significant projects that ensure everyone, regardless of background or circumstance, benefits from the transformative potential impact of AI, data science, and computing on medicine.

Director of Graduate Admissions and **Co-Director of Graduate Studies**, Department of Computer Science, UIC
Aug 2022 – current
Inter-institutional graduate admissions data collection and comparative analysis, fee waiver petition and negotiations, cooperation with the Office for Admissions, the Office for Academic Enrollment, and the College Associate Deans, admission decision management, outreach. Alternate for Director of Graduate Studies in cooperation with the Graduate College, degree-related exam committee formation, and dissertation form approval. Significant increases in the number of doctoral applications received and doctoral admission yield.

UIC Cancer Center, member.
2019 – current

Discovery Partners Institute, member.
2019 – current

Past:

Associate Professor, Department of Computer Science, University of Illinois at Chicago, Jan 2015 – Aug 2022.
Computational research into robust, scalable and effective computer science and visualization tools to solve problems in science and engineering. Multiple outstanding research honors. Multiple NSF and NIH R01 awards. Specific research projects include: computational oncology, medical imaging, biology visualization, theoretical foundations in visualization, machine learning for the visualization of large scale tensor-valued fields, and usability of large, immersive displays to biomed and to collaborative applications. Another award, at the College level, for teaching excellence.
Project management (multi-site), fund raising, grant management (multi-$M), interdisciplinary collaboration, public communication, results dissemination, software engineering, software deployment, teaching, advising, mentoring, committee steering and chairing, reviewing.

Visiting Scientist, Technical University of Vienna, Austria
Feb 2022 – May 2022
Courtesy appointment during sabbatical leave from UIC (Spring 2022)

Visiting Scholar, New York University, Tandon School of Engineering, NY
Aug 2021 – Dec 2021
Courtesy appointment during sabbatical leave from UIC (Fall 2021)

Visiting Faculty, Robotics Institute, Carnegie Mellon University, May 2014 – Dec 2014.
Computational modeling research to help solve problems in robotics and computer animation.

Joint Assistant Professor, Department of Computational and Systems Biology, University of Pittsburgh School of Medicine, Secondary Appointment, 2009 – 2014.
Visualization, modeling and simulation for rule-based biochemical systems.

Adjunct Assistant Professor of Computer Science, Robotics Institute, Carnegie Mellon University, 2007 – 2014.
Computational modeling research to help solve problems in robotics and computer animation.

Assistant Professor, Department of Computer Science, University of Pittsburgh, July 2007 – Sept 2014.
Founder and Director of the Interdisciplinary Visualization Lab. Twice Pitt Faculty Honoree for most outstanding research accomplishments. NSF CAREER Award. Three Outstanding Paper awards. One US patent, preceded by technology transfer to industry. Excellent record in rising federal funding for research. One NSF Graduate Fellowship to my student. Six Teaching Awards, five based on student feedback and one at the Provost level. Founder and advisor to the Pitt Women in CS student organization; outreach activities. Departmental tenure recommendation, thank you. Moved on.
Specific research projects include visualization of large scale vector-valued and tensor-valued fields, visual integration of spatial and non-spatial information, visualization and cross-registration of large-scale, multivariate data, intelligent algorithms for automated tracking of orthopaedic data, geometric tools for tissue modeling and simulation.
Project management, lab management and directing, fund raising, grant management, interdisciplinary collaboration, public communication, results dissemination, software engineering, software deployment, teaching, advising and mentoring.

Research Assistant, Brown University, 2000 – 2007.
Interdisciplinary work in articulation modeling and visualization (CS, Bioengineering, Orthopedics, Evolutionary Biology).

CS Faculty-Graduate Liaison, Brown University, 2003 – 2005.
Lobbied and raised funding for grad student interests.

Instructor, Brown University, 2004.
"Interactive Computer Graphics", full graduate/undergraduate class responsibility together with fellow graduate students M. McGuire and T. Moscovich

Teaching Assistant, Brown University, 2003.
"Interactive Computer Graphics". Led seminars and help-sessions, guest-lectured, mentored final projects.

Research intern, Philips Research, Netherlands, Summer 1998.
Designed and implemented a geometry compression engine for video-games.

Lab instructor, Politehnica University, Romania, 1997 – 1999.
Introductory Programming, Data Structures and Algorithms, Scientific Computing, Parallel Processing. Taught seminars and labs, designed and graded assignments and independent-study projects.

Intern, Electromagnetica Ltd, Romania, Summers 1992, 1994.
Programmed parts of a VLSI-circuit design project.

Honors and Awards

2024 **NIH CIDH Chartered Study Section member appointment** 2024-2028

Faculty Fellow of the Year, Honors College UIC

2023 **University Scholar, University of Illinois System** (Chicago, Springfield, Urbana-Champaign)

Computing Research Association Leadership Academy selection

University of Illinois Faculty Awardee (for University Scholar award)

2022 UIC College of Engineering Teaching Award[1]

University of Illinois Faculty Awardee (for Test of Time award)

2021 **Test of Time Award, Ten-years most impactful biovis paper, ISMB 2021**[2]

NIH Chartered Reviewer Group Nomination

Faculty Fellow of the Year Nomination, UIC Honors College

2017 **National Institutes of Health R01 Award,** Early Stage Investigator

IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Honorable Mention (MC2), IEEE VIS 2017

IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Honorable Mention (MC3), IEEE VIS 2017

UIC College of Engineering Young Researcher of the Year award

IEEE Senior Member

2016 **IEEE VGTC Visualization Pioneers Group (VPG) Data Visualization Contest Honorable Mention,** IEEE VIS 2016

2013 **IEEE Biology Visualization Data Contest Visualization Award**, IEEE BioVis 2013

2013 Pitt CS Teaching Award Nomination, Graduate seminar level

2012 **IEEE Large Data Analysis and Visualization Honorable Mention** (Best-Paper Runner-Up Award), IEEE LDAV 2012

2012 Desire2Learn Edge Challenge shortlist ($25K teaching-industry competition)

2012 **Computing Research Association-W Advanced Career Mentoring Workshop Travel Award**

2012 Pitt CS Teaching Award, Graduate course level

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[1] "The recipients of the teaching award are traditionally recognized for their excellence in teaching and their contributions to the curriculum. In addition, some of the awardees have rapidly adopted new technologies, modalities, and innovative thinking to achieve learning objectives as UIC transitioned to remote learning [during the COVID-19 pandemic]." (UIC Faculty Affairs notification).

[2] Test of Time Awards are prestigious awards in Computer Science, made to the most impactful research paper published in N years at a specific conference; in this case, 10 years at the flagship conference in computational biology.

2011 **IEEE Biology Visualization Best Paper Award**, IEEE BioVis 2011; Pitt faculty honoree

2011 Pitt CS Teaching Award, Upper-level undergraduate course

2010 Pitt CS Teaching Award, Upper-level undergraduate course, top 4% in School of A&S

2010 **National Science Foundation CAREER Award**; Pitt faculty honoree

2009 Pitt Speaking in the Disciplines Fellowship

2009 Pitt CS Teaching Award, Graduate course, top 4% in School of A&S

2009 **Innovation in Education Award,** Pitt Provost's Advisory Council on Instructional Excellence

2008 Pitt CS Teaching Award[3], Graduate seminar

2004 **ACM SIGGRAPH Student Research Competition semifinalist** – twice, first nomination with students Peter Sibley and Phil Montgomery; and second with students Ethan Bromberg and Arni Jonsson. Brown University Travel Grant and **ACM Travel Awards**.

2001 **Pixar Fellowship**

2000 **Microsoft Fellowship**

1999 **Brown University Fellowship**

1997,1996 **Romanian National 'Scholar Merit' Fellowship**

1996 **Best Paper Award** at the Politehnica Bioengineering'96 Scientific Session

Journal Publications[4]

J57. T. Baumgartl*, M. Ghoniem*, T. von Landesberger*, G.E. Marai*, S. Miksch*, S. Scheithauer*, N. Srivastava*,
"Empowering Communities: Tailored Pandemic Data Visualization for Varied Tasks and Users"
pp.1-8, IEEE Comp Graph. App, Jan 2025

J56. A. Wentzel, S. Attia, X. Zhang, G. Canahuate, C.D. Fuller, G.E. Marai,
"DITTO: A Visual Digital Twin for Interventions and Temporal Treatment Outcomes in Head and Neck Cancer", pp. 1-11, IEEE Trans. Vis. Comp. Graphics, Jan 2025 / VIS 2024

[3] Pitt CS Teaching Awards reward most-effective teaching at specific levels during the previous academic year; measured using the University-conducted student-evaluations of courses and instructors.

[4] In most cases, the last author listed denotes the project leader. In rare cases where the project leader is not listed last, they are indicated with an asterisk – *. JNN. is linked to the public, online pdf. With some journals' shift to online publishing, page numbers have become less common. Student/advisee names are underlined, going back to 2015.

J55. J. Trelles, A. Wentzel, W. Berrios, H. Shatkay, G.E. Marai
“BI-LAVA: Biocuration with Hierarchical Image Labeling through Active Learning and Visual Analytics” pp.1-15, Comp. Graph. Forum 2024

J54. A. Johnson, L. Renambot, G.E. Marai, D. Tsoupikova, M.E. Papka, L. Long, D. Plepys, J. Talandis, M.D. Brown*, J. Leigh, D.J. Sandin, T.A. DeFanti,
“Electronic Visualization Laboratory’s 50th Anniversary Retrospective: Look to the Future, Build on the Past”, pp. 1-51, Presence: Virtual and Augmented Reality, MIT Press 2024.

J53. A. Wentzel, L. Levine, V. Dhariwal, Z. Fatemi, A.Bhattacharya, B. Di Eugenio, A. Rojecki, E. Zheleva, G.E. Marai,
"MOTIV: Visual Exploration of Moral Framing in Social Media", pp. 1-14,
Computer Graphics Forum 2024.

J52. M. Mantovani, A. Wentzel, J. Trelles, J. Michaelis, G.E. Marai
“Kiviat Defense: An Empirical Evaluation of Visual Encoding Effectiveness in Multivariate Data Similarity Detection”,
Journal of Imaging Science and Technology, Jan 2024.

J51. J. Trelles Trabucco, C. Arighi, H. Shatkay, G. E. Marai
"Enhancing biomedical search interfaces with images"
Bioinformatics Advances, July 2023

J50. C. Floricel, A. Wentzel, A. Mohamed, C.D. Fuller, G. Canahuate, G.E. Marai,
“Roses Have Thorns: Understanding the Downside of Oncological Care Delivery Through Visual Analytics and Sequential Rule Mining”, pp. 1-11,
IEEE Trans. Vis. Comp. Graphics, Jan 2024 / VIS 2023 (IF 5.23)

J49. A. Wentzel, A. S. R. Mohamed, M. Naser, L. V. van Dijk, K. Hutcheson, A. Moreno, C. D. Fuller, G. Canahuate, G.E. Marai,
"Multi-Organ Spatial Stratification of 3-D Dose Distributions Improves Risk Prediction of Long-Term Self-Reported Severe Symptoms in Oropharyngeal Cancer Patients Receiving Radiotherapy: Development of a Pre-Treatment Decision Support Tool"
Frontiers in Oncology, section Head and Neck Cancer, July 2023 (IF 4.7)

J48. G. Canahuate, A. Wentzel, A. S. R. Mohamed, L. V. van Dijk, D. M. Vock, B. Elgohari, H. Elhalawani, C. D. Fuller, G. E. Marai
“Spatially-aware clustering improves AJCC-8 risk stratification performance in oropharyngeal carcinomas”,
Oral Oncology, July 2023 (IF 3.0)

J47. A. Wentzel, C. Floricel, G. Canahuate, M. Naser, A. Mohamed, C.D. Fuller, L. Van Dijk, G.E. Marai,
“DASS Good: Explainable Data Mining of Oncology Imaging and Toxicity Data”, pp. 1-13,
Computer Graphics Forum 2023 / EuroVis, June 2023 (IF 2.36)

J46. A. L. Politowicz; A. T. Burks; Y. Dong; Y. M. Htwe; S. M. Dudek; G. E. Marai*; P. Belvitch*
"Alveolus Analysis: A Web Browser-based Tool to Analyze Lung Intravital Microscopy"
BMC Pulmonary Medicine, Mar 2023

J45. L. V. van Dijk, A. S. R. Mohamed, S. Ahmed, N. Nipu, G. E. Marai, K. Wahid, N. M. Sijtsema, B. Gunn, A. S. Garden, J. A. Langendijk, C. D. Fuller
"Head and Neck Cancer Predictive Risk Estimator to Determine Control and Therapeutic Outcomes of Radiotherapy (HNC-PREDICTOR) Development, international multi-institutional validation, and web-implementation of clinic-ready model-based risk stratification for head and neck cancer"
European Journal of Cancer, 2022 (IF: 10)

J44. N. Nipu, C. Floricel, N. Naghashzadeh, R. Paoli, G. E. Marai
"Visual Analysis and Detection of Contrails in Aircraft Engine Simulations", pp. 1-11,
IEEE Trans. Vis. Comp. Graphics, Jan 2023 / VIS 2022

J43. E. Tardini, X. Zhang, G. Canahuate, A. Wentzel, A.S.R. Mohamed, L.van Dijk, C.D. Fuller, G.E. Marai
"Optimal Treatment Selection in Sequential Systemic and Locoregional Therapy of Oropharyngeal Squamous Carcinomas: Deep Q-Learning With a Patient-Physician Digital Twin Dyad", pp. 1-21, J of Medical Internet Research, Vol 24(4) April 2022

J42. C. Floricel, N. Nipu, A. Wentzel, M. Biggs, G. Canahuate, A.S.R. Mohamed, L. van Dijk, C.D. Fuller, G.E. Marai
"THALIS: Human-Machine Analysis of Longitudinal Symptoms in Cancer Therapy"
IEEE Trans. Vis. Comp. Graphics /VIS 2021

J41. P. Li, G. Zhang, X. Jiang, J. Trelles Trabucco, D. Raciti, C. Smith, M. Ringwald, G. E. Marai, C. Arighi, H. Shatkay
"Utilizing Image and Caption Information for Biomedical Document Classification",
Bioinformatics, 2021

J40. A. Wentzel, T. Luciani, L. V. van Dijk, N. Taku, B. Elgohari, A.S.R. Mohamed, G. Canahuate, C. D. Fuller, D. Vock, G.E. Marai
"Precision association of lymphatic disease spread with radiation-associated toxicity in oropharyngeal squamous carcinomas"
J. Radiotherapy & Oncology 2021

J39. H. Patel, D. Vock, G.E. Marai, C.D. Fuller, A. Mohamed, G. Canahuate,
"Oropharyngeal cancer patient stratification using random forest based-learning over high-dimensional radiomic features"
Scientific Reports, 2021.

J38. S. McKearnan, D. Vock*, G.E. Marai, G. Canahuate, C.D. Fuller, J. Wolfson,
"Feature Selection for Support Vector Regression Using a Genetic Algorithm"
Biostatistics, 2021.

J37. A. Wentzel, P. Hanula, L. V. van Dijk, A. S. Mohamed, B. Elgohari, C. Cardenas, C. D. Fuller, D. Vock, G. Canahuate, G.E. Marai,
"Precision toxicity correlates of tumor spatial proximity to organs at risk in cancer patients receiving intensity-modulated radiotherapy"
J. Radiotherapy & Oncology, 2020

J36. J. Tosado, L. Zdilar, H. Elhalawani, B. Elgohari, D. Vock, G. E. Marai, C. D. Fuller, A. S. Mohamed, G. Canahuate,
"Clustering of Largely Right-Censored Oropharyngeal Head and Neck Cancer Patients for Discriminative Groupings to Improve Outcome Prediction"
Scientific Reports, 2020

J35. T. Luciani, A. Wentzel, B. Elgohari, H. Elhalawani, A. Mohamed, G. Canahuate, D.M. Vock, C.D. Fuller, G.E. Marai,
"A Spatial Neighborhood Methodology for Computing and Analyzing Lymph Node Carcinoma Similarity in Precision Medicine"
Journal of Biomedical Informatics, Feb. 2020

J34. A. Wentzel, P. Hanula, T. Luciani, B. Elgohary, G. Canahuate. D. Vock, C.D. Fuller, G.E. Marai
"Cohort-based T-SSIM Visual Computing for Radiation Therapy Prediction and Exploration",
IEEE Trans. Vis. and Comp. Graph., pp. 1-11, Jan. 2020, IEEE VIS 2019

J33. G.E. Marai*, B. Pinaud, K. Buehler, A. Lex, J.H. Morris
"Ten simple rules to create biological network figures for communication"
PLOS Computational Biology, pp. 1-17, Aug. 2019

J32. J. Trabucco, A. Rottigni, M. Cavallo, D. Bailey, J. Patton, G.E. Marai
"User perspective and higher cognitive task-loads influence movement and performance in immersive training environments"
BMC Biomedical Engineering, pp.1-14, Aug. 2019

J31. K. Christopherson, A. Ghosh, A.S.R. Mohamed, M. Kamal Jomaa, G. B. Gunn, G. E. Marai, G. Canahuate, H. El Halawani, D. Vock, J. Kalpathy-Cramer, T. Dale, J. Messer, A. S. Garden, S. J. Frank, J. Lewin, S. Y. Lai, W. H. Morrison, J. Phan, N. Gross, R. Ferrarotto, R. S. Weber, D. I. Rosenthal, K. Hutcheson, C. D. Fuller
"Chronic Radiation-Associated Dysphagia in Oropharyngeal Cancer Survivors: Towards Age-Adjusted Dose Constraints for Deglutitive Muscles"
Clinical and Translational Radiation Oncology, Vol. 18, pp. 16–22, Sept. 2019

J30. B. Lee, K. Isaacs, D. Albers Szafir, G.E. Marai, C. Turkay, M. Tory, S. Carpendale, A. Endert
"Broadening Intellectual Diversity in Visualization Research Papers",
IEEE Computer Graphics and Applications, pp. 1-9, July/Aug 2019

J29. G.E. Marai, J. Leigh, A. Johnson
"Immersive Analytics Lessons from the Electronic Visualization Laboratory: A 25-Year Perspective"
IEEE Computer Graphics and Applications, pp. 1-13, May/June 2019

J28. J. Trelles, D. Lee, S. Derrible, G.E. Marai,
"Visual Analysis of a Smart City's Energy Consumption",
Multimodal Technologies and Interaction Special Issue on Interactive Visualizations for Sustainability, pp.1-13, May 2019.

J27. P. Hanula, K. Piekutowski, J. Aguilera, G.E. Marai,
"DarkSky Halos: Use-Based Exploration of Dark Matter Formation Data in a Hybrid Immersive Virtual Environment"
Frontiers in Robotics and AI, section Virtual Environments, Feb 2019, pp. 1-20

J26. T. Luciani, A. Burks, C. Sugiyama, J. Komperda, G.E. Marai
"Details first, show context, overview last: Supporting Exploration of Viscous Fingers in Large-Scale Ensemble Simulations",
IEEE Trans. on Vis. and Comp. Graphics, pp.1-10, IEEE VIS 2018

J25. S.P. Ng, B. A. Dyer, J. Kalpathy-Cramer, A.S.R. Mohamed, M.J. Awan, G.B. Gunn, J. Phan, M. Zafereo, J.M. Debnam, C. M. Lewis, R. R. Colen, M. E. Kupferman, N. Guha-Thakurta, G. Canahuate, G.E. Marai, D. Vock, B. Hamilton, J. Holland, C.E. Cardenas, S. Y. Lai, D. I. Rosenthal, C. D. Fuller. "A Prospective In Silico Analysis of Interdisciplinary and Interobserver Spatial Variability in Post-Operative Target Delineation of High-Risk Oral Cavity Cancers: Does Physician Specialty Matter?" Clinical and Translational Radiation Oncology 2018, pp. 1-26, 2018

J24. L. Zdilar, D. Vock, G.E. Marai, C.D. Fuller, A.S.R. Mohamed, H. Elhalawani, B. Elgohari, G.Canahuate
"Evaluating the effect of right-censored endpoint transformation for radiomic feature selection of data from patients with oropharyngeal cancer"
J Clinical Oncology Clinical Cancer Informatics 2018, pp 1-19, 2018

J23. H. Elhalawani, T. A Lin, S. Volpe, A. S.R. Mohamed, A.L. White, J. Zafereo, A. Wong, J. E. Berends, S. Abohashem, B. Williams, J. M. Aymard, A. Kanwar, S. Perni, C. D. Rock, L. Cooksey, S. Campbell, P. Yang, K. Nguyen, R. Ger, C. E. Cardenas, X. Fave, C. Sansone, G. Piantadosi, S. Marrone, R. Liu, C. Huang, K. Yu, T. Li, Y. Yu, Y. Zhang, H. Zhu, J S. Morris, V Baladandayuthapani, J W. Shumway, A Ghosh, A Pöhlmann, H Phoulady, V Goyal, G Canahuate, G. E Marai, D Vock, S Y. Lai, D S. Mackin, L E. Court, J. Freymann, K. Farahani, J. Kalpathy-Cramer, C.D. Fuller
"Machine Learning Applications in Head and Neck Radiation Oncology: Lessons from Open-Source Radiomics Challenges",
Frontiers in Oncology, Vol. 8, Section: Radiation Oncology, 2018 (**IF 4.6**)

J22. G.E. Marai*, C. Ma, A. Burks, F. Pellolio, G. Canahuate, D. Vock, A.S.R. Mohamed, C.D. Fuller, "Precision Risk Analysis of Cancer Therapy with Interactive Nomograms and Survival Plots", pp. 1-13, IEEE Transactions on Visualization and Computer Graphics, 2018 (**IF 2.8**)

J21. C. Ma, F. Pellolio, D. Llano, R. Kenyon, G.E. Marai
"RemBrain: Exploring Dynamic Biospatial Networks with Mosaic-Matrices and Mirror Glyphs", Journal of Imaging Science and Technology, Vol. 61, No. 6, Pp. 60404-1-60404-13(13), 2017 **(IF 0.4)**

J20. G.E. Marai
"Activity-centered Domain Characterization for Problem-Driven Scientific Visualization", IEEE Transactions on Visualization and Computer Graphics, (Proceedings of the Visual Analytics Science and Technology / Information Visualization / Scientific Visualization 2017), vol. 24, no. 01, pp. 1-10, Jan 2018 (**IF 2.8**)

J19. MD Anderson Head and Neck Cancer Quantitative Imaging Collaborative Group
"Investigation of radiomics-based signature for local recurrence using primary tumor texture analysis in oropharyngeal head and neck cancer patients", Scientific Reports, 2018 (**IF 5.5**)

J18. Multidisciplinary Larynx Cancer Working Group
(Alphabetically: B. Beadle, G. Canahuate, A. El-Naggar, S. Frank, C.D. Fuller*, A. Garden, N. Gross, G.B. Gunn, K. Hutcheson, S. Lai, J. Lewin, M. Kies, G.E. Marai, A.S.R. Mohamed, W. Morrison, C. Mulcahy, J. Phan, D. Rosenthal, P. Sevak, T. Sheu, D. Vock, R. Weber, and M. Zafereo)
"Conditional Survival Analysis of Patients With Locally Advanced Laryngeal Cancer: Construction of a Dynamic Risk Model and Clinical Nomogram", Scientific Reports 7, 2017 (**IF 5.5**)

J17. H. Elhalawani, A.S.R. Mohamed, A. White, J. Zafereo, A. Wong, J. Berends, S. AboHashem, B. Williams, J. Aymard , A. Kanwar , S. Perni , C. Rock , L. Cooksey , S. Campbell , Y. Ding, S. Lai , G.E. Marai, D. Vock , G. Canahuate, J. Freymann, K. Farahani, J. Kalpathy-Cramer, C.D. Fuller
"Matched computed tomography segmentation and demographic data for oropharyngeal cancer radiomics challenges", Nature Scientific Data 4 (Article Number 170077): 1-14, 2017 (**IF 4.29**)

J16. A. Kanwar, AS Mohamed, LE Court, L Zhang, GE Marai, G Canahuate, JS Lee, S Perni, JA Messer, BH Pham, B Youssef, D Vock, A Rao, J Kalpathy-Cramer, GB Gunn, DI Rosenthal, CD Fuller, "Development of a Predictive Quantitative Contrast Computed Tomography-Based Feature (Radiomics) Profile for Local Recurrence in Oropharyngeal Cancers", International Journal of Radiation Oncology, Biology, Physics 96(2):S191, 2016 **(IF 4.49)**

J15. C. Ma, T. Luciani, A. Terebus, J. Liang, G.E. Marai,
"PRODIGEN: Visualizing the probability landscape of stochastic gene regulatory networks in state and time space", pp 1-13, BMC Bioinformatics 18(2):24, 2017 **(IF 2.4)**

J14. G.E. Marai*, T. Luciani, A. Maries, L. Yilmaz, M. Nik.
"Visual Descriptors for Dense Tensor Fields in Computational Turbulent Combustion: A Case Study", pp. 1-11, Journal Imaging Science and Technology, 2016(1) **(IF 0.4)**

J13. J. Aurisano, K. Reda, A. Johnson, G.E. Marai, J. Leigh,
"BactoGeNIE: A Large-Scale Comparative Genome Visualization for Big Displays", BMC Bioinformatics Journal, pp. 1-13, 16(11):S6, 2015. **(IF 2.58)**

J12. J. Wenskovitch, L.A. Harris, J.J. Tapia, J.R. Faeder, G.E. Marai,
"MOSBIE: A Tool for Comparison and Analysis of Rule-Based Biochemical Models", BMC Bioinformatics Journal, pp. 1-21, 15 (1):316, 2014. (**IF 2.68**)

J11. T. Luciani, J. Wenskovitch, K. Chen, D. Koes, T. Travers, G.E. Marai,
"FixingTIM: Interactive Exploration of Sequence and Structural Data to Identify Functional Mutations in Protein Families", BMC Proceedings (Vol. 8, No. 2, p. S3), pp. 1-10, 2014.

J10. T. Luciani, B. Cherinka, S. Myers, W.M. Wood-Vasey, A. Labrinidis, G.E. Marai,
"Large-Scale Overlays and Trends: Visually Mining, Panning and Zooming the Observable Universe", IEEE Transactions on Visualization and Computer Graphics, *20*(7), pp.1048-1061, 2014. (**IF 2.21**)

J9. A. Maries, N. Mays, M. Olson Hunt, K. Wong, W. Layton, C. Rosano, R. Boudreau, G.E. Marai,
"GRACE: A Visual Comparison Framework for Integrated Spatial and Non-Spatial Geriatric Data", IEEE Transactions on Visualization and Computer Graphics, *19*(12), pp.2916-2925, Oct 2013. (**IF 2.21**)

J8. Md. A. Haque, W. Anderst, S. Tashman, G.E. Marai,
"Hierarchical Dynamic Model-based Tracking of Cervical Vertebrae from Fluoroscopy Images", Journal Medical Physics and Engineering, 35(7): 994-1004, July 2013. (**IF 2.11**)

J7. A.M. Smith, W. Xu, Y. Sun, J.R. Faeder, G.E. Marai,
"RuleBender: Integrated Modeling, Simulation and Visualization for Rule-Based Intracellular Biochemistry", BMC Journal Bioinformatics, 13 (Visualization Issue, Suppl 8):S3: 1-16, Jun 2012. (**IF 3.02**)

J6. W. Xu, A. Smith, J.R. Faeder, G.E. Marai,
"RuleBender: A Visual Interface for Rule-Based Modeling", Bioinformatics Journal, 27: 1721-2, Apr 2011 (**IF 5.47**)

J5. J.S. Albrecht, R. Hwa, G.E. Marai,
"The Chinese Room: Visualization and Interaction to Understand and Correct Ambiguous Machine Translation". Computer Graphics Forum 28: 1047-1054, *(Eurographics/IEEE Symposium on Visualization, Proceedings of)*, June 2009. (**IF 1.64**)

J4. G.E. Marai*, C.M. Grimm, D.H. Laidlaw,
"Arthrodial Joint Markerless Cross-Parameterization and Biomechanical Visualization", IEEE Transactions on Visualization and Computer Graphics 13(5): 1095-1104, Sep/Oct 2007. (**IF 2.22**)

J3. J.J. Crisco*, D. Moore, G.E. Marai, D.H. Laidlaw, E. Akelman, A.C. Weiss, S.W. Wolfe,
"Effects of Distal Radius Malunion on Distal Radioulnar Joint Mechanics—An In Vivo Study", Journal of Orthopedic Research 25(4): 547-555, Jan. 2007. (**IF 2.81**)

J2. G.E. Marai, J.J. Crisco, D.H. Laidlaw,
"Super-Resolution Registration Using Tissue-Classified Distance Fields", IEEE Transactions on Medical Imaging, 25(2): 177-187, Feb. 2006. (**IF 3.64**)

J1. G.E. Marai, C. Demiralp, S. Andrews, C.M. Grimm, J.J. Crisco, D.H. Laidlaw,
"Estimating Joint Contact Areas and Ligament Lengths from Bone Kinematics and Surfaces", IEEE Transactions on Biomedical Engineering, 51(5): 790-799, May 2003 (**IF 2.28**)

Edited Collections

E11. Computer Graphics Forum, Special Issue for the 24th Eurographics Conference on Visualization, EuroVis 2022, R. Borgo, G.E. Marai, T. Schreck, 2022.

E10. Computer Graphics Forum, Special Issue for the 23rd Eurographics Conference on Visualization, EuroVis 2021, R. Borgo, G.E. Marai, T. von Landesberger, 2021.

E9. 22nd Eurographics Conference on Visualization, EuroVis 2020 – Short Papers, C. Garth, A. Kerren, G.E. Marai, Norrkoping, Sweden, May 2020. Eurographics Association 2020.

E8. 21st Eurographics Conference on Visualization, EuroVis 2019 - Short Papers, J. Johansson, F. Sadlo, G.E. Marai, Porto, Portugal, June 3-7, 2019. Eurographics Association 2019, ISBN 978-3-03868-090-1

E7. *STAR-State of the Art Reports*, R. Laramee, G.E. Marai, M. Sedlmair, Computer Graphics Forum Vol. 37 No.3, 2018

E6. *Proceedings of the Symposium on Biological Data Visualization at VIS 2016,* J. Aerts, A. Lex, G.E. Marai, M. Streit, D. Weiskopf, *BMC Bioinformatics*, 18 (Suppl 2), BioMed Central 2017

E5. *Highlights from the 5th Symposium on Biological Data Visualization: Part 1*. J. Aerts, G.E. Marai, K. Nieselt, C. Nielsen, M. Streit, D. Weiskopf. *BMC Bioinformatics*, 16(Suppl 11):S1, BioMed Central 2015

E4. *Highlights from the 5th Symposium on Biological Data Visualization: Part 2*. J. Aerts, G.E. Marai, K. Nieselt, C. Nielsen, M. Streit, D. Weiskopf, *BMC Proceedings*, 9(Suppl 6):S1, BioMed Central 2015

E3. *BMC Bioinformatics Biological Data Visualization Series*, G.E. Marai, S. O'Donoghue, C. Bartlett and J. Aerts, BioMed Central, July 2014.

E2. *IEEE Third Symposium on Biological Data Visualization Proceedings*, G.E. Marai and K. Nieselt, pp. 1-130, IEEE Computer Society, Oct 2013.

E1. *Special Section on Biomedical Applications: From Data Capture to Modeling*, IEEE Computer Graphics & Applications, C. Grimm and G.E. Marai, pp. 20-80, IEEE Computer Society, Sept/Oct 2012.

Book Chapters (peer-reviewed)

B6. G.E. Marai, T. Moller,
"The Fabric of Visualization", in Foundations of Data Visualization, M. Chen, H. Hauser, P. Rheingans, G. Scheuermann (editors), Mathematics and Visualization Series, Springer 2020.

B5. M. Monfort, T. Luciani, J. Komperda, B. Ziebart, F. Mashayek, G.E. Marai.
"A Deep Learning Approach to Identifying Shock Locations in Turbulent Combustion Tensor Fields", in Modelling, Processing and Visualization of Anisotropy, I. Hotz, T. Schultz, E. Ozarslan (editors), Mathematics and Visualization Series, Springer 2017.

B4. A. Maries, T. Luciani, P. Pesciuneri, M. Nik, S.L. Yilmaz, P. Givi, G.E. Marai,
"A Clustering Method for Identifying Regions of Interest in Turbulent Combustion Tensor Fields", Visualization and Processing of Higher Order Descriptors for Multi-Valued Data, pp. 323 -338, I. Hotz and T. Schultz (editors), Springer 2015.

B3. M. Hlawitschka, I. Hotz, A. Kratz, G.E. Marai*, R. Moreno, G. Scheuermann, M. Stommel, A. Wiebel, E. Zhang,
"Top Challenges in the Visualization of Engineering Tensor Fields", Visualization and Processing of Tensors and Higher-Order Descriptors for Multi-field Data, pp. 3 – 15, B. Burgeth, A. Vilanova and C.F. Westin (editors), Springer 2014.

B2. A. Maries, Md.A. Haque, S.L. Yilmaz, M.B. Nik, G.E. Marai,
"Interactive Exploration of Stress Tensors Used in Computational Turbulent Combustion",
New Developments in the Visualization and Processing of Tensor Fields, pp. 137 – 156, D. Laidlaw and A. Vilanova (editors), Springer 2012.

B1. D.H. Laidlaw, G.E. Marai, K.E. Fleischer, A. Barr,
"Partial Volume Segmentation and Boundary Distance Estimation with Voxel Histograms",
in Handbook of Medical Imaging: Processing and Analysis, 2nd edition, pp. 223 – 244, I.N. Bankman (editor), Academic Press 2010.

Peer-reviewed Conference Papers

C33. Anyimadu, E.A., Wang, Y., Floricel, C., Kamel, S., Moreno, A.C., Fuller, C.D., Zhang, X., Marai, G. and Canahuate, G.M.,
"PRO-based Stratification Improves Model Prediction for Toxicity and Survival of Head and Neck Cancer Patients". In *IEEE-EMBS International Conference on Biomedical and Health Informatics, 2024.*

C-. A. Wentzel, S. Attia, X. Zhang, G. Canahuate, C.D. Fuller, G.E. Marai,
"DITTO: A Visual Digital Twin for Interventions and Temporal Treatment Outcomes in Head and Neck Cancer", pp. 1-11, St. Pete Beach, FL, IEEE VIS 2024, Oct. 2024 (cross-listed under journal publications above) (25% acceptance rate)

C32. E. A. Anyimadu, C.D. Fuller, X. Zhang, G.E. Marai, G. Canahuate
"Collaborative Filtering for the Imputation of Patient Reported Outcomes",
35th Database and Expert Systems Applications Conference (DEXA 2024), Naples, Italy, Aug 2024

C--. M. Mantovani, A. Wentzel, J. Trelles, J. Michaelis, G.E. Marai
"Kiviat Defense: An Empirical Evaluation of Visual Encoding Effectiveness in Multivariate Data Similarity Detection",
Electronic Imaging 2024, January 2024, Burlingame, CA. (cross-listed under journal publications above)

C31. J. Trelles, C. Floricel, C. Arighi, H. Shatkay, D. Raciti, M. Ringwald, G.E. Marai,
"MouseScholar: Evaluating an Image+Text Search System for Biocuration",
IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2023, December 2023, Istanbul, Turkey (19% acceptance rate)

C30. A. Wentzel, L. Levine, V. Dhariwal, Z. Fatemi, A. Bhattacharya, B. Di Eugenio, A. Rojecki, E. Zheleva, G. E. Marai,
"A Lens to Pandemic Stay at Home Attitudes",
IEEE VIS Workshop on Visualization for Pandemic and Emergency Responses 2023 (Vis4PandEmRes), Oct. 2023, Melbourne, Australia (30% acceptance rate)

C29. Y. Wang, L. Van Dijk, A. S. R. Mohamed, M. Naser, C. D. Fuller, X. Zhang, G. E. Marai, G. Canahuate, "Improving prediction of late symptoms using LSTM and patient-reported outcomes for head and neck cancer patients", pp. 1-10, IEEE-ICHI The 11th IEEE International Conference on Healthcare Informatics 2023, Houston TX.

C--. C. Floricel, A. Wentzel, A. Mohamed, C.D. Fuller, G. Canahuate, G.E. Marai,
"Roses Have Thorns: Understanding the Downside of Oncological Care Delivery Through Visual Analytics and Sequential Rule Mining", pp. 1-11, Melbourne, Australia,
IEEE VIS 2023 (cross-listed under journal publications above) (25% acceptance rate)

C--. A. Wentzel, C. Floricel, G. Canahuate, M. Naser, A. Mohamed, C.D. Fuller, L. Van Dijk, G.E. Marai,
"DASS Good: Explainable Data Mining of Oncology Imaging and Toxicity Data", pp. 1-13, Leipzig, Germany, EG EuroVis 2023 (cross-listed under journal publications above) (25% acceptance rate)

C28. Z. Fatemi, A. Bhattacharya, L. Levine, V. Dhariwal, A. Wentzel, B. Di Eugenio, G.E. Marai, A. Rojecki, E. Zheleva
Understanding Stay-at-home Attitudes through Framing Analysis of Tweets
The 9th IEEE International Conference on Data Science and Advanced Analytics (DSAA), Oct. 2022

C--. N. Nipu, C. Floricel, N. Naghashzadeh, R. Paoli, G. E. Marai
"Visual Analysis and Detection of Contrails in Aircraft Engine Simulations", pp. 1-11,
IEEE VIS 2022 (cross-listed under journal publications above) (26% acceptance rate)

C27. S. Srabanti, M. Tran, V. Achim, C.D. Fuller, G. Canahuate, F. Miranda, G.E. Marai,
"A tale of two centers: Visual exploration of health disparities in cancer care", pp. 101-110. In *2022 IEEE 15th Pacific Visualization Symposium (PacificVis)*, April 2022.

C26. J. Trelles, P. Li, C. Arighi, D. Raciti, H. Shatkay, G.E. Marai,
"ANIMO: Annotation of Biomed Image Modalities", pp. 1069-1076,
IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2021 (19% acceptance rate)

C25. S. Srabanti, G.E. Marai, F. Miranda
"EnsembleVis: Visual Analysis of County-level Forecast Ensemble Models"
IEEE VIS 2021 VAHC (Visual Analytics in HealthCare)

C--. C. Floricel, N. Nipu, A. Wentzel, M. Biggs, G. Canahuate, A.S.R. Mohamed, L. van Dijk, C.D. Fuller, G.E. Marai
"THALIS: Human-Machine Analysis of Longitudinal Symptoms in Cancer Therapy"
IEEE VIS 2021 (cross-listed as J42 above) (26% acceptance rate)

C24. Y. Wang, G.E. Marai, X. Zhang, A. Mohamed, L. Van Dijk, C.D. Fuller, G. Canahuate
"Predicting late symptoms of head and neck cancer treatment using LSTM and patient reported outcomes"
IDEAS 2021

C--. P. Li, G. Zhang, X. Jiang, J. Trelles Trabucco, D. Raciti, C. Smith, M. Ringwald, G. E. Marai, C. Arighi, H. Shatkay
"Utilizing Image and Caption Information for Biomedical Document Classification", Intelligent Systems for Molecular Biology ISMB/ECCB 2021 (cross listed as J41 above) (20% acceptance rate)

C23. M. Biggs, C. Floricel, L. Van Dijk, A. S. R. Mohamed, C.D. Fuller, G.E. Marai, X. Zhang, G. Canahuate
"Identifying Symptom Clusters from Patient Reported Outcomes through Association Rule Mining", Artificial Intelligence in Medicine in Europe (AIME) 2021.

C22. J. Trelles, P. Li, H. Shatkay, C. Arighi, G.E. Marai
"Modality-Classification of Microscopy Images Using Shallow Variants of Deep Networks"
BIBM Workshop on Machine Learning for Biological and Medical Image Big Data, pp.1-7, IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2020.

C21. Wentzel A., Canahuate G., van Dijk L, Mohamed A, Fuller CD, Marai GE.
"Explainable Spatial Clustering: Leveraging Spatial Data in Radiation Oncology", pp. 1-5, IEEE VIS 2020.

C--. A. Wentzel, P. Hanula, T. Luciani, B. Elgohary, G. Canahuate. D. Vock, C.D. Fuller, G.E. Marai
"Cohort-based T-SSIM Visual Computing for Radiation Therapy Prediction and Exploration", pp. 1-11, IEEE VIS 2019 (cross-listed as J34 above)

C--. T. Luciani, A. Burks, C. Sugiyama, J. Komperda, G.E. Marai
"Details first, show context, overview last: Supporting Exploration of Viscous Fingers in Large-Scale Ensemble Simulations", pp.1-10,
IEEE VIS 2018 (cross-listed as J26 above)

C--. C. Ma, F. Pellolio, D. Llano, R. Kenyon, G.E. Marai
"RemBrain: Exploring Dynamic Biospatial Networks with Mosaic-Matrices and Mirror Glyphs", Conference on Visualization and Data Analysis 2018, Part of IS&T Electronic Imaging 2018 (cross-listed as J21 above), pp 1-13, 2018

C--. G.E. Marai
"Activity-centered Domain Characterization for Problem-Driven Scientific Visualization",
IEEE VIS 2017, pp. 1-10, SciVis'17 (cross-listed as J20 above).

C20. M. Thomas, T. Kanampallil, J. Abraham, GE Marai,
"Echo: A Large Display Interactive Visualization of ICU Data for Effective Care Handoffs", pp.1-8, The 8th IEEE Workshop on Visual Analytics in Healthcare VAHC'17, 2017.

C19. V. Doshi, S. Tuteja, K. Bharadwaj, D. Tantillo, T. Marinnan, J. Patton, G.E. Marai,
"StickySchedule: An Interactive Multi-user Application for Conference Scheduling on Large-scale Shared Displays", pp. 1-8, The 6th ACM International Symposium on Pervasive Displays PerDis'17, 2017.

C18. S. Kitsiou*, M. Thomas, G.E. Marai, N. Maglaveras, G. Kondos, R. Arena, B. Gerber,
"Development of an innovative mHealth platform for remote physical activity monitoring and health coaching of cardiac rehabilitation patients", 2017 IEEE International Conference on Biomedical and Health Informatics (top 14%), 2017

C--. C. Ma, T. Luciani, A. Terebus, J. Liang, G.E. Marai,
"PRODIGEN: Visualizing the probability landscape of stochastic gene regulatory networks in state and time space", pp 1-13, IEEE BioVis 2016 (cross-listed as J16 above)

C17. D. McNamara, J. Tapia, C. Ma, T. Luciani, A. Burks, J. Trelles, and G.E. Marai,
"Spatial Analysis of Employee Safety Using Organizable Event Quiltmaps", pp. 1-4, IEEE VIS 2016 The Event Event: Temporal & Sequential Event Analysis Workshop, Oct. 2016.

C16. G.E. Marai*, A. Forbes, A. Johnson,
"Interdisciplinary Immersive Analytics at the Electronic Visualization Laboratory: Lessons Learned and Upcoming Challenges", IEEE Virtual Reality Workshop on Immersive Analytics, pp 1-6, 2016

C15. K. Bharadjaw, S. Flores, J. Rodriguez, L. Long, G.E. Marai,
"Developing a Scalable SNMP Monitor", IEEE IPDPS (International Parallel and Distributed Processing Symposium) Workshop on High Performance Data Analysis and Visualization, pp.1-4, 2016

C--. G.E. Marai*, T. Luciani, A. Maries, L. Yilmaz, M. Nik.
"Visual Descriptors for Dense Tensor Fields in Computational Turbulent Combustion: A Case Study", pp. 1-12. Conference on Visualization and Data Analysis 2016, Part of IS&T Electronic Imaging 2016 (cross-listed as J15 above)

C14. G.E. Marai,
"Visual Scaffolding in Integrated Spatial and Nonspatial Visual Analysis", pp. 1-5, The Sixth International Eurovis Workshop on Visual Analytics EuroVA'15, May 2015

C--. J. Aurisano, K. Reda, A. Johnson, G.E. Marai, J. Leigh,
"BactoGeNIE: A Large-Scale Comparative Genome Visualization for Big Displays", pp. 1-13, The Fifth Symposium on Biological Data Visualization BioVis'15, July 2015. (cross-listed as J14 above)

C13. J. Wenskovitch, T. Luciani, K. Chen, G.E. Marai,
"Fixing TIM: Identifying Functional Mutations in Protein Families through the Interactive Exploration of Sequence and Structural Data", IEEE BioVis 2013 Data Competition, pp. 1–4, 2013. **IEEE BioVis'13 Data Contest Visualization Award.**

C--. A. Maries, N. Mays, M. Olson, K. Wong, W. Layton, C. Rosano, R. Boudreau, G.E. Marai, "GRACE: A Visual Comparison Framework for Integrated Spatial and Non-Spatial Geriatric Data", IEEE VIS 2013 (formerly VisWeek, formerly IEEE Visualization) SciVis, pp.1-10, Oct 2013. (cross-listed as J9 above)

C12. Md. A. Haque, G. E. Marai, "A Semi-Automated Method for Subject-Specific Modeling of the Spinal Canal from Computed Tomography Images and Dynamic Radiographs", The 18th International Workshop on Vision, Modeling and Visualization, pp. 1–8, Sep 2013.

C11. Md.A. Haque, G.E. Marai, "Image to Mesh: Spinal Ligament 2D Surface Models from Bone Volume Images and Dynamic Radiographs", MICCAI 2013 Workshop on Mesh Processing in Medical Image Analysis, pp. 1-12, Sept 2013.

C10. M. Liang, J. Guerra, G.E. Marai, P. Brusilovsky, "Collaborative E-Learning through Open Social Student Modeling and Progressive Zoom Navigation", The 8th IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing, pp. 1-10, Oct 2012. **Desire2Learn Edge Challenge shortlist**.

C9. T. Luciani, S. Myers, B. Sun, B. Cherinka, W.M. Wood-Vassey, A. Labrinidis, G.E. Marai, "Panning and Zooming the Observable Universe with Prefix-Matching Indices and Pixel-Based Overlays", IEEE Large-scale Data Analysis and Visualization Symposium, pp. 1-8, Oct 2012. **Best-Paper Runner-Up Award.**

C8. P. Neophytou, R. Gheorghiu, R. Hachey, T. Luciani, B. Sun, A. Labrinidis, G.E. Marai, P. K. Chrysanthis, "AstroShelf: Understanding the Universe through Scalable Navigation of a Galaxy of Annotations", SIGMOD 2012 System Demonstrations, pp. 1-4, May 2012.

C7. A.M. Smith, W. Xu, Y. Sun, J.R. Faeder, G.E. Marai, "RuleBender: Integrated Visualization for Biochemical Rule-Based Modeling", IEEE Visualization 2011, IEEE BioVis: Symposium on Biological Data Visualization, pp.1-8, Oct 2011. **Best Paper Award.**

C6. W. Xiong, D. Litman, G.E. Marai, "Analyzing Prosodic Features and Student Uncertainty using Visualization", Association for the Advancement of Artificial Intelligence Fall Symposium (AAAI-FS'09), pp. 1-6, Nov 2009.

C5. G.E. Marai*, J.J. Crisco, D.H. Laidlaw, "Development of a Kinematic 3D Carpal Model to Analyze In Vivo Soft-Tissue Interaction Across Multiple Static Postures", IEEE 31st Conf. of the Engineering in Medicine and Biology Society (EMBC'09), pp. 7176–7179, Sept. 2009. (Podium)

C-. J.S. Albrecht, R. Hwa, G.E. Marai, "The Chinese Room: Visualization and Interaction to Understand and Correct Ambiguous Machine Translation", Eurographics/IEEE Symposium on Visualization, Proceedings of, pp. 1-8, June 2009 *(cross-listed as J5 above)*

C4. J. Albrecht, R. Hwa*. G.E. Marai, "Correcting Automatic Translations through Collaborations between MT and Monolingual Target-Language Users", EACL 2009, 12th Conference of the European Chapter of the Association for Computational Linguistics, pp. 60-68, Mar. 2009.

C3. G.E. Marai, J.J. Crisco, D.H. Laidlaw,
"A Kinematics-Based Method for Evaluating the Stabilizing Role of Ligaments in the Carpal Joint", 16th Annual Symposium on Computational Methods in Orthopaedic Biomechanics, Computational Modeling track, pp. 1-4, Mar. 2008 (Podium).

C2. G.E. Marai, J.J. Crisco, D.H. Laidlaw,
"A Kinematics-Based Method for Generating Cartilage Maps and Deformations in the Multi-Articulating Wrist Joint from CT Images", IEEE 28th Conf. of the Engineering in Medicine and Biology Society (EMBC'06), pp. 2079-2082, Sept. 2006.

C1. G.E. Marai*, A. Ivan,
"Neural Networks versus Fuzzy Logic", Politehnica Bioengineering Scientific Session, pp. 1-10, Politehnica University of Bucharest, pp. 1-10, May 1996. **Best paper award.**

Peer-reviewed Abstracts and System Demonstrations

Several short papers have higher citation counts than TVCG papers, several are ACM Student Research semifinalists or other award winners, several have 10% (podium) selection or acceptance rates etc.

S42. S. Zhang, G.E. Marai,
A Part-to-Whole Circular Cell Explorer, IEEE BioMedVis Challenge, IEEE VIS, 2024.

S41. S. Gawane, X. Zhang, G. Canahuate, A. Wentzel, A. Mohamed, L. van Dijk, C.D. Fuller, G.E. Marai, Interpretable Transformer-based Meta-Reinforcement Learning for Longitudinal Head-and-Neck Cancer Treatment, Sixth ISC Workshop on HPC Applications in Precision Medicine, Oct 2023

S40. L. V. van Dijk, A. S. R. Mohamed, S. Ahmed, N. Nipu, G. E. Marai, K. Wahid, N. M. Sijtsema, B. Gunn, A. S. Garden, J. A. Langendijk, C. D. Fuller
"HNC-PREDICTOR model to select head and neck patients for personalized treatment"
10th European Conference on Head & Neck Oncology, 2023

S39. E. Tardini, X. Zhang, G. Canahuate, A. Wentzel, A. Mohamed, L. van Dijk, C.D. Fuller, G.E. Marai,
"A digital twin dyad with deep Q-learning in head and neck cancer treatment"
Fourth ISC Workshop on HPC Applications in Precision Medicine, June 18 2021

S38. Y. Dong, A. Burks, A. Politowicz, S. Dudek, P. Belcovitch, G.E. Marai,
"Alveolus Analysis: A Web Based Tool for Analysis Of Intravital Lung Microscopy"
American Thoracic Society (ATS) Meeting 2021 & Midwest Clinical and Translational Research Meeting 2021 (NIH K-award $500)

S37. C. Floricel, N. Nipu, N. Kumar, A. Wentzel, G. Canahuate, L. vanDijk, C.D. Fuller, G.E. Marai,
"Visualizing Patient Clusters and Symptom Development During Head and Neck Cancer Treatment"
IEEE VIS 2020 Posters Program, Salt Lake City, UT, 2020.

S36. T. Luciani, B. Elgohari, H. Elhalawani, A.S. Mohamed, G. Canahuate, D. Vock, C.D. Fuller, G.E. Marai
"Correlating Toxicity Outcomes with Spatial Patterns of Lymph Node Metastasis for Oropharyngeal Cancer Patients"
ASTRO Annual Meeting of the American Society for Radiation Oncology, Chicago, IL 2019

S35. A. Wentzel, B. Elgohari, P. Hanula, T. Luciani, H. Elhalawani, C. E. Cardenas, B. Edwards, A. S. Mohamed, G. Canahuate, D. Vock, C. D. Fuller, and G. E. Marai
"Cohort-Based Spatial Similarity Can Predict Radiotherapy Dose Distribution",
ASTRO Annual Meeting of the American Society for Radiation Oncology, pp. 1-2, Chicago, IL 2019

S34. H. Elhalawani, A. Mohamed, S. Volpe, P. Yang, S. Campbell, R. Granberry, R. Ger, X. Fave, L. Zhang, GE Marai, DM Vock, GM Canahuate, D. Macking, L. Court, GB Gunn, A. Rao, CD Fuller,
"A Composite Clinical/Serially-derived Parotid Gland Radiomics-based Model can be Correlated with Post-RT Xerostomia at 6 months in Oropharyngeal Cancer Patients Treated with Image-Guided Radiation Therapy", pp. 1-3, ESTRO 2018

S33. H. Elhalawani, A. Mohamed, S. Volpe, P. Yang, S. Campbell, R. Granberry, R. Ger, X. Fave, L. Zhang, GE Marai, DM Vock, GM Canahuate, D. Macking, L. Court, GB Gunn, A. Rao, CD Fuller,
"A Combination of Serial Tumor Radiomics Features and key clinical attributes can predict the response of Head & Neck Cancers Treated with Image-Guided Radiation Therapy", pp. 1-3, ESTRO 2018

S32. J. Castor, J. Borowicz, A. Burks, M. Thomas, T. Luciani, G.E. Marai, "MC2 - Mining Factory Pollution Data through a Spatial-Nonspatial Flow Approach", IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Proceedings, pp. 1-2, 2017. **VAST Challenge Honorable Mention (MC2)** in competition with 56 submissions from teams in academia, industry, and government

S31. D. Kirilov, I. Lindmae, A. Burks, C. Ma, G.E. Marai
"MC1: A Bespoke Analysis Tool for Spatio-temporal Park Traffic Data"
IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Proceedings, pp. 1-2, 2017.

S30. V. Mahida, B. Kupiec, A. Burks, T. Luciani, G.E. Marai, "MC3 - A Web-Based Interactive Image Explorer for Temporal Analysis of Satellite Images", IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Proceedings, pp. 1-2, 2017. **VAST Challenge Honorable Mention (MC3)** in competition with 56 submissions from teams in academia, industry, and government

S29. H. Elhalawani et al
"Predicting the HPV P16 Status of Oropharyngeal Cancer Patients Using Radiomics and an Ensemble of Random Forests", Radiology Society of North America meeting RSNA 2017 (podium)

S28. H. Elhalawani et al
"Normal Tissue Radiomic Feature Kinetics in Oropharygeal Cancers Treated with Image-Guided Radiation Therapy: Assessment of Parotid Glands Textural Changes on Daily Non-contrast CT",
Radiology Society of North America meeting RSNA 2017

S27. C. Ma, A. Burks, T. Luciani, A. Terebus, J. Liang, G.E. Marai
"Visualizing ensemble time-evolving probability landscapes of stochastic networks", ISMB/ECCB 2017, pp. 1-2, BioVis'17

S26. T. Luciani et al, "Multi-scale Voronoi-based ACT Assessment", IEEE VIS VPG Data Contest, pp. 1-2, Oct 2016. **Honorable Mention**.

S25. A. Kanwar, M.A.S. Radwan, L. Court, J.S. Lee, A. Rao, J. Kalpathy-Cramer, D.Vock, G.E. Marai, G. Canahuate, G.B. Gunn, J. Zhang, C.D. Fuller, "Contrast-enhanced CT (CE-CT) Texture Analysis Radiomic Analysis of Pretreatment Contrast-Enhanced CT Imaging Predicts Local Failure in Oropharyngeal Cancers Treated with Radiotherapy", pp. 1-2, ASTRO 2016, Sep 2016

S24. T. Luciani, C. Ma, J. Trelles, F. Pelollio, G.E.Marai, "Developing a Data-Driven Wiki of Spatial-Nonspatial Integration Tools", IEEE VIS C4PGV Workshop 2016, pp.1-1, Oct 2016.

S23. A. Burks, C. Sugiyama, T. Luciani, J. Komperda, G.E. Marai, "Interactive Exploration and Tracking of Ensemble Viscous Fingers", IEEE VIS SciVis Data Contest 2016, IEEE VIS 2016, pp. 1-2, Oct 2016.

S22. P. Hanula, K. Piekutowski, C.Uribe, K. Almryde, A. Nishimoto, J. Aguilera, G.E. Marai, "Cavern Halos: Exploring Spatial and Nonspatial Cosmological Data in an Immersive Virtual Environment", Virtual and Augmented Reality, 3D, and Stereoscopic Systems Conference Poster Compendium, Electronic Imaging '16, Feb 2016

S21. T. Luciani, A. Maries, M. Nik, L. Yilmaz, G.E. Marai, "Visualization of Tensor Quantities Used in Computational Turbulent Combustion", American Physical Society, Division of Fluid Dynamics (APS DFD) Conference 2013, pp. 1-1, Nov 2013.

S20. J. Wenskovitch, L. Harris, J. Faeder, G.E. Marai, "A Journaling System for Rule-Based Biochemical Models", IEEE BioVis Posters Compendium, pp. 1–1, Oct 2013.

S19. T. Luciani, A. Maries, H. Tran, M. Nik, S.L. Yilmaz, G.E. Marai, "A Novel Method for Tracking Tensor-based Regions of Interest in Large-Scale, Spatially-Dense Turbulent Combustion Data", IEEE Visualization 2012, Poster Abstracts with System Demonstration, pp. 1-2, Oct 2012.

S18. Md. A. Haque, W. Anderst, S. Tashman, G.E. Marai, "Validation of a Non-invasive Automated Hierarchical Method to Precisely Measure Lumbar Spine Movement", The 2012 Annual Meeting of the Orthopaedic Research Society, Image Processing track, pp. 1, March 2012.

S17. T. Luciani, R. Hachey, D.Q. Oliphant, B.A. Cherinka, G.E. Marai, "Pixel-based Overlays for Navigating a Galaxy of Observations", IEEE Visualization 2011, Large-scale Data Analysis and Visualization Symposium, Poster Abstracts with System Demonstration, pp. 1-2, Oct 2011.

S16. A. Maries, S. Mandayam, C. Rosano, G.E. Marai, "Visual Analysis of Brain/Gait Correlations", IEEE Visualization 2011, Poster Abstracts with System Demonstration, pp. 1-2, Oct 2011.

S15. S.D. Rothenberger, J.E. Wenskovitch, G.E. Marai, "Pexel and Heatmap Visual Analysis of Multidimensional Gun/Homicide Data", IEEE Visualization 2011, Visual Analytics Science and Technology, Poster Abstracts with System Demonstration, pp. 1-2, Oct 2011.

S14. A. Smith, W. Xu, J.R. Faeder, G.E. Marai, "Scalable Global Views for Biological Rule-Based Modeling", IEEE Visualization 2011, InfoVis Poster Abstracts with System Demonstration, pp. 1-2, Oct 2011.

S13. Md. A. Haque, A. Maries, S.L. Yilmaz, M.B. Nik, G.E. Marai, "Tensor Visualization in Computational Turbulent Combustion: A Case Study", IEEE Visualization 2010, Poster Abstracts with System Demonstration, pp. 1-2, Oct 2010.

S12. G.E. Marai, J.J. Crisco, D.H. Laidlaw, "Estimation of Optimal Carpal Contact in the Human Wrist from Multiple Static Articulation Postures", 2009 Biomedical Engineering Society (BMES) Annual Meeting, Computational Modeling track, pp.1, Oct 2009 (Podium).

S11. G.E. Marai, "MyWorld4D: Introduction to Computer Graphics with a Modeling and Simulation Twist", ACM SIGGRAPH 2009, Education Talks Track, pp. 1, Aug. 2009.

S10. A.M. Smith, J.J. Geiger, G.M. Kapfhammer, M. Renieris, G.E. Marai, "Interactive Coverage Effectiveness Multiplots for Evaluating Prioritized Regression Test Suites", IEEE Visualization 2009, Poster Abstracts with System Demonstration, pp. 1-2, Oct 2009.

S9. J.S. Albrecht, R. Hwa, G.E. Marai, "The Chinese Room – Understanding and Correcting Machine Translation", IEEE Information Visualization 2008, Poster Abstracts with System Demonstration, pp. 1-2, Oct. 2008.

S8. G.E. Marai*. D.H. Laidlaw, "Markerless inter-subject bone shape matching using 2D projections", Medical Image Computing and Computer Assisted Intervention (MICCAI) 2005, pp. 1-2, 2005.

S7. G.E. Marai, C. Demiralp, S. Andrews, D.H. Laidlaw, "JointViewer – an interactive system for exploring orthopedic data", IEEE Visualization 2004, Poster Abstracts with System Demonstration, pp. 1-2, 2004.

S6. E. Bromberg, A. Jonsson, G.E. Marai*, M. McGuire, "Hybrid Billboard Clouds for Model Simplification", ACM SIGGRAPH Poster Compendium, pp. 1-2, 2004. **ACM Student Research Competition semifinalist.**

S5. P. Sibley, P. Montgomery, G.E. Marai, "Wang Cubes for Video Synthesis and Geometry Placement", ACM SIGGRAPH Poster Compendium, pp. 1-2, 2004. **ACM Student Research Competition semifinalist.**

S4. J.J. Crisco*, G.E. Marai, D.H. Laidlaw, D. Moore, E. Akelman, "Kinematic and mechanical changes in the distal radioulnar joint (DRUJ) of patients with malunited distal radius fractures", 49th Annual Meeting of the Orthopaedic Research Society, Computational Modeling track, pp. 1, 2003.

S3. G.E. Marai, D.H. Laidlaw, J.J. Coburn, M.A. Upal, J.J. Crisco, "A 3D Method for Segmenting and Registering Carpal Bones from CT Volume Images", Annual Meeting of the American Society of Biomechanics, Medical Imaging track, pp. 1, 2003.

S2. G.E. Marai, D.H. Laidlaw*, C. Demiralp, C. Grimm, J.J. Crisco, D. Moore, and E. Akelman, "Contact Areas and Ligament Lengths are Abnormal in Patients with Malunited Distal Radius Fracture Despite Normal Radioulnar Kinematics", 4th World Congress Biomechanics, Computational Modeling track, pp.1 -2, 2002.

S1. C. Demiralp, G.E. Marai, S. Andrews, D.H. Laidlaw*, J.J. Crisco, C. Grimm, "Modeling and Visualization of Inter-Bone Distances in Joints", IEEE Visualization 2001, Work in Progress Proceedings, pp. 24-25, 2001.

Other Publications

O7. K. Klein, G.E. Marai, K. Nieselt, B. Zupan, "Report from Dagstuhl Seminar 21401 Visualization of Biological Data – From Analysis to Communication", pp. 1-40, 2021.

O6. J. Aerts, N. Gehlenborg, K. Nieselt, G.E. Marai, "Report from Dagstuhl Seminar 18161 Visualization of Biological Data – Crossroads", pp. 1-40, 2019.
http://drops.dagstuhl.de/opus/volltexte/2018/9760/pdf/dagrep_v008_i004_p032_18161.pdf

O5. B. Habtegiorgis, E. Kreft, T. Luciani, G.E. Marai, "Visual Encodings for Immersive Visualization of Turbulent Combustion Data", Tapia Conference, pp 1-2, Sep 2016.

O4. C. Uribe, P. Hanula, K. Piekutowski, A. Nishimoto, K. Almryde, J. Aguilera, G.E. Marai, "3D Immersive Color-Mapping of Large Astronomical Data", Tapia Conference, pp 1-2, Sep 2016.

O3. D.Q. Oliphant, G.E. Marai, "Real Time Ray Tracing in a Space Limited Environment", Technical Report TR-2011-03, University of Pittsburgh, Computer Science Department, 2010.

O2. A.M. Smith, W. Xu, Y. Sun, J.R. Faeder, G.E. Marai, "Visual Tools for Modeling and Simulation of Cell Signaling Networks", Carnegie Mellon Bioimaging Informatics Symposium, Sep 2010.

O1. G.E. Marai, "Geometry Compression of DirectX Files", Technical Report 322/98, Philips Research, September 1998 (company-restricted distribution).

Patents

Intelligent algorithms for tracking three-dimensional skeletal movement from dynamic stereo-radiographic image sequences, S. Tashman; G.E. Marai; Md.A. Haque; US Patent 9,538,940, Jan 2017. Technology transfer for medical instrument (exclusive license) to C-Motion Inc, March 2016.

Software

Created, maintained, deployed and/or freely distributed

ORN-PREDICTOR: interactive, web-based visual computing interface that calculates and displays the osteoradionecrosis toxicity probability for a given head and neck cancer patient who underwent radiotherapy, based on cohorts of similar patients from two centers. Project developed in collaboration with MD Anderson Cancer Center. (2024)
https://uic-evl.github.io/OsteoradionecrosisVis/

GXD MOUSE SCHOLAR: publication retrieval system for searching biomedical documents in the GXD-2000 collection based on text AND images. It retrieves documents that contain both the desired text and desired image modalities (such as "cell" and "microscopy") and presents the document information along with the relevant images in those documents. Project developed in collaboration with several biocuration groups at U Delaware, Caltech, and Jackson Labs. (2023)
https://runachay.evl.uic.edu/gxd/

HN-PREDICTOR: interactive, web-based visual computing interface that calculates and displays the survival and toxicity probability for a given head and neck cancer patient, based on cohorts of similar patients from several nations. Project developed in collaboration with MD Anderson Cancer Center. (2023)
https://uic-evl.github.io/hnc-predictor/

CORD-19 IMAGE SCHOLAR: publication retrieval system for the CORD-19 documents from the Allen Institute collection that contain both the desired text and desired image modalities (such as "cell" and "microscopy"), and which presents the document information along with the relevant images in those documents. Project developed in collaboration with several biocuration groups at U Delaware, Caltech, and Jackson Labs. (2023)
https://runachay.evl.uic.edu/scholar

ALVEOLUS: a web browser-based tool to analyze mouse lung intravital microscopy. (2023)
https://github.com/uic-evl/AlveolusAnalysis

ANIMO: an interface for interactively labeling image modalities in biomed scientific publications. Deployed with researchers at University of Delaware and at Caltech.
https://runachay.evl.uic.edu/animo

SMARTER: software to compute the probability of survival and specific toxicities for a specific patient, based on an anonymized cohort of head and neck cancer patients.
https://github.com/uic-evl/SMARTER ; http://qubbd-smarter.evl.uic.edu:8000/

CAMP-RT: an automated method to compute the similarities between multiple cancer patients in terms of their radiation therapy plan and rank these anonymized patients accordingly. Deployed at MD Anderson Cancer Center, University of Texas.
https://github.com/uic-evl/CAMP-RT

Lymphatic Cancer Viz: This project visualizes the chain of affected lymph nodes for patients in a cohort of head and neck cancer patients, ranked by disease spread similarity.
https://github.com/uic-evl/LymphaticCancerViz

Chicago Energy: an open-source, freely-available, web-based visual explorer for energy consumption data in Chicago

Englewood Social Service Finder: a freely-available, web-based visual interface for making social service data available to young people in Englewood, Chicago. Sponsored by The Joseph and Bessie Feinberg Foundation.

StickySchedule: a freely-available, open-source tool for collaboratively scheduling conference sessions on large displays. Available under EVL's SAGE2 middleware.

SAGEBoard: an open-source interactive application for collaborative use of large displays as a whiteboard. Available under EVL's SAGE2 middleware.

CavernHalos: a free and open-source immersive 3D application for exploring dark matter simulation data in a CAVE2 environment. Available under EVL's CAVE2 environment.

RuleBender: a free visual tool for constructing, debugging, simulating and analyzing rule-based biological models. Distribution for Windows, Linux and OSX, 32 bit and 64 bit. More than 1,000 downloads in 2012 alone.

GRACE: a visual comparison tool for integrated spatial and non-spatial geriatric data. Distribution for Linux and OSX, commissioned by and deployed to the Pitt Graduate School for Public Health. Described as their "Dream Tool" by the user.

Fixing TIM: a visual mining and analysis tool to help identify protein mutations across family structural models, and to help discover the effect of these mutations on protein function. Linux distribution, currently in beta-release. IEEE BioVis 2013 Data Contest Visualization Award.

MOSBIE: an interactive model exploration system for tracking the features and development history of a family of biochemical models, and for identifying similarities and differences between biochemical models.

Astroshelf: a "Scientific Google Sky", designed and implemented from scratch; its power and flexibility enables it to serve the needs of the scientific astronomy community. The front-end of this visual computing infrastructure uses the web technologies WebGL and HTML5 to enable cross-platform, web-based functionality. Currently in beta-release. IEEE LDAV 2012 Best Paper Runner-Up.

Hierarchical Spine Tracking: a project for automatically, accurately and reliably determining the 3D motion of the cervical spine from a series of stereo or biplane radiographic images. The software has led to a reduction in labor-time by a factor of 12; the project has been deployed at the UPMC Biodynamics Lab. Patent awarded.

Distance-field Computed-Tomography Registration: a project for accurately tracking 3D motion of orthopaedic data from sequences of CT volumes. Accuracy improvements of over 74% compared to the previous state of the art. Project deployed at Brown University.

Research Grants and Awards

UIC Pilot Institute for Equitable Health Data Science Research, Directors: Andrew Boyd and Liz Marai, $2.0M, 02/15/2024 – 02/15/2028.

NIH UG3 TR004501: Integration and interoperability of complex data and tissues from the human brain, Co-PI. PI: Jeffrey Loeb (Neurology and Rehabilitation), who is heading a Chicago Epilepsy Cooperative Agreement between UIC, Rush University, University of Chicago, Northwestern University, and Lurie Children's Hospital. UIC team: Site PI Anna Serafini (Neurology and Rehabilitation), Co-Is: Biswajit Maharathi (Neurology and Rehabilitation), Liz Marai (CS), Fozia Mir (Neurology and Rehabilitation), Ahmad Daher (Neurology and Rehabilitation), $3,131,401, 09/20/2023 - 07/31/2026

NSF CNS-2320261 Research Infrastructure: MRI: Track 2 Acquisition of Data Observation and Computation Collaboratory (DOCC), Co-PI (PI: A. Johnson, other Co-PIs: M. Papka, F. Miranda, N. Soni), $1,548,545, 10/01/2023 - 09/30/2026.

University Scholar Award, University of Illinois System, $45K, May 2023 – May 2026.

"NIH R01 Longitudinal Spatial-Nonspatial Decision Support for Competing Outcomes in Head and Neck Cancer Therapy", NIH NCI R01CA258827, Lead PI on multi-site project with U Texas, and U Iowa, UIC Co-PI: X. Zhang, $2.8M, Mar 2021 – Feb 2026.

"NIH NCI Diversity Supplement to R01CA258827", Lead PI on supplement to U Texas, $106K, Oct 2021 – Feb 2022.

"NIH Uncovering Clinical Evidence in COVID-19 Publications: An Integrated Search via Text & Images", NIH-NLM Supplement, MPI (U Delaware MPI: H. Shatkay, Co-PI: C. Arighi), $29K out of $75K, Sep 2020-Aug 2023

"I-BRAIN - A Big Data of the Human Brain Analytics Platform and Scientific Cluster", Discovery Partners Institute DPI, Co-PI (PI: J. Loeb, Other Co-PIs: M. Marko, B. Maharathi, E. Sadhu, N. Albarracin, R. Iyer, J. Patton, E. Barbour, K. Donnely), $125K, Sep 2020- Aug 2021

"NSF III RAPID: Stay-at-home attitudes and their impact on the COVID-19 pandemic", NSF-IIS-2031095, Co-PI (PI: E. Zheleva, other Co-PIs: B. Di Eugenio, A. Rojecki), $99K, May 15, 2020-Apr. 30, 2022.

"NSF CDS&E High-performance Computing and Data-driven Modeling of Aircraft Contrails", NSF-CDS&E- 1854815, Co-PI (PI: R. Paoli, MIE), $446K, July 1, 2019 – June 30, 2023.

"NSF MRI Acquisition of a Composable Platform as a Service Instrument for Deep Learning & Visualization (COMPaaS DLV)", NSF-CNS-1828265, Co-PI (PI: M. Brown, other Co-PIs: A. Johnson, R. Kenyon), $997,363, Oct 2018 – Sep 2021.

"NIH R01 Incorporating Image-based Features into Biomedical Document Classification", NIH-NLM-R01LM012527, PI on M-PI grant with U Delaware (subcontract from U Delaware, PI H. Shatkay), $568,630 out of $1.85M award, Sep 2017 – Aug 2023.

"NIH R01 QuBBD: Precision E–Radiomics for Dynamic Big Head & Neck Cancer Data", NIH-NCI-R01CA225190, Lead PI on interdisciplinary multi-site project with U Texas, U Iowa, and UMN, $782K, Sept 2017 – Aug 2022. (Routed to NIH from NSF for funding, Highly Competitive)

"NIH R01 SMART-ACT: Spatial Methodologic Approaches for Risk Assessment and Therapeutic Adaptation in Cancer Treatment", NIH-NCI-R01CA214825, Lead PI on interdisciplinary multi-site project with U Texas, U Iowa, and UMN, $1.12M, Mar 2017 – Mar 2021.

"NSF MRI-Development of Continuum: A Virtualized Attentive Environment for Amplified Collaboration", NSF CNS-1625941, Co-PI, (PI: A. Johnson, other Co-PIs M. Brown, A. Forbes, R. Kenyon, B. Di Eugenio), $550K, Sept 2016 – Sept 2021.

"UIC Collaborative Dashboard for Patient Care Transitions", UIC College of Engineering Seed, PI (other co-PIs T. Kannampallil, J. Abraham, UIC School of Medicine), $25K, May 2016 – Apr 2017.

"NSF DMS QUBBD: Collaborative Research: SMART -- Spatial-Nonspatial Multidimensional Adaptive Radiotherapy Treatment", NSF-DMS-1557559, PI, other Co-PIs: CD Fuller (MD Anderson Cancer Center), G. Canahuate (U. Iowa), D. Vock (U. Minnesota), $100K *($25K award to UIC),* Sept 2015 – Sept 2016.

"NSF CAREER Data-driven Bottom-Up Humanoid Articulations", NSF CAREER IIS-1541277, PI, $280K transfer to UIC, Oct 2014 - Apr 2017.

"NSF CDS&E: Data Management and Visualization in Petascale Turbulent Combustion Simulation", NSF CBET-1250171, Co-PI (P. Givi PI; other co-Pis L. Yilmaz, A. Labrinidis, P. Chrysanthis), $500K *($352K direct; PI on subcontract to UIC)*, Sept 2012 – August 2017.

"NSF CDI-Type II: Understanding the Universe through Scalable Navigation of a Galaxy of Annotations", NSF OIA-1028162, Co-PI (A. Labrinidis, PI; other Co-Pis P. Chrysanthis, J. Newman, M. Wood-Vasey), $1.6M *($1.1M direct),* Sept 2010 – Sept 2015.

"NSF CAREER: Data-Driven Bottom-Up Humanoid Articulations", NSF CAREER Award IIS-0952720, PI, $546K *($385K direct),* April 2010 – March 2015.

"Geriatric Research in Ambulatory and Cognitive Excellence (GRACE)", University of Pittsburgh Research Council's Multidisciplinary Small Grant Program, Co-PI (C. Rosano PI; other co-PI W. Layton), $150K *($150K direct),* July 2009 – June 2012.

"Immersive Software Engineering", Pitt Provost's Advisory Council on Instructional Excellence (ACIE) Innovation in Education grant, PI, $16K *($16K direct),* May 2009 – April 2010.

Funded Research Experiences for Undergraduates (REU) and Workshops

"NSF REU – CDS&E High-performance Computing and Data-driven Modeling of Aircraft Contrails", NSF-CBET-1854815, Co-PI (PI: R. Paoli), $16K, June 2020—May 2023.

"GPIP: Creating a UIC De-identified Head & Neck Cancer Repository", UIC CoE Guaranteed Paid Internship Program, support for 3 undergraduate students, PI, July-Aug 2019.

"Visualizing Social Services in Englewood", PI, The Joseph and Bessie Feinberg Foundation, $16K, May 2017- May 2018

"NSF WORKSHOP: Doctoral Colloquium at IEEE VIS 2016", NSF-IIS- 1647803, PI, $20.8K *($20.8K direct)*, July 2016—June 2017.

"CRA CREU-W Collaborative Research Experience for Undergraduates", Computing Research Association, $10.5K, Sept 2015—Apr 2016.

"NSF WORKSHOP: Doctoral Colloquium at IEEE VIS 2015", NSF IIS-1540159, PI, $20.8K *($20.8K direct)*, Apr 2015—Apr 2016.

"NSF REU – CAREER: Data-Driven Bottom-Up Humanoid Articulations", NSF IIS-1340866, PI, $12.8K *($12.8K direct),* April 2013—May 2014.

"NSF REU – CAREER: Data-Driven Bottom-Up Humanoid Articulations", NSF IIS-1241554, PI, $16K *($13K direct),* May 2012—May 2013.

"NSF WORKSHOP: Doctoral Colloquium at IEEE VisWeek 2011", NSF IIS-1139350, Co-PI (R. Kosara, PI; other co-Pis E. Zhang, T.J. Jankun-Kelly), $20K *($20K direct)*, Aug 2011—Aug 2012.

"NSF REU – CAREER: Data-Driven Bottom-Up Humanoid Articulations", NSF IIS-1130458, PI, $16K *($13K direct)*, Apr 2011—Apr 2012.

Outreach

2015-to date — Multiple outreach demonstrations of EVL technology to K-12, college students and their families, to state, city and University of Illinois administration officials

Faculty research mentor to more than 15 UIC undergraduates, 60% of whom are CS minorities, 2015-to date

Founder and organizer of a mentoring network for female researchers in visualization, Oct 2015

GHC co-chaperone to a cohort of 40 UIC CS female undergrads, Oct 2015

CRA-W REU faculty mentor to three minority students, Sep -May 2016

2013 — Organized and ran a Hands-On-Science Animation Bootcamp workshop for 20 under-represented and under-privileged high-school students; excellent reviews, May

2012 Organized and ran the Pitt Women in Computer Science "Mentoring Lunch", 14 participants (20% participation rate), Oct

Co-Organized the "Lunch with the Industry and National Labs" event at IEEE VisWeek'12, 100 participants, Oct

Co-organized and ran the "Lunch with the Mentors" event at IEEE VisWeek'12, 100 participants, Oct

Scientific Visualization outreach presentation (w/ VisLab), Pittsburgh Academy for Science and Technology, 100 participants, Jan

2011 Created and organized the "Lunch with the Mentors" mentoring system at IEEE VisWeek'11, 150 participants, Oct

2010 Created, organized and ran the Technology Leadership Initiative VideoGame Design and Implementation workshop (w/ VisLab) for 18 under-represented and under-privileged elementary school students; excellent reviews, Feb

Created, organized and ran the Tech Divaz Build a Computer workshop (w/ Women in Computer Science) for the Technology Leadership Initiative; 18 participants, excellent reviews, June

2009 Worked with the Technology Leadership Initiative organizer, T. Groover, to revise a Google RISE small grant proposal to support a diversity summer camp, March; awarded ($5K).

Visualization and Computational Modeling for Science and Engineering presentation, Technology Leadership Initiative, 25 participants, May

2008 Visualization and Computational Modeling for Science and Engineering presentation, Technology Leadership Initiative (Pitt CS Diversity program, reaching to under-represented African-American elementary and highschool students), 25 participants, May

2005 – 2007 Women in Computer Science coordinator, Brown University; launched and coordinated the graduate student arm of the organization, 20 graduate members, Feb

Popular Press Recognition, Magazine/Journal Covers, and Textbook Inclusions

Image from contrail digital twin work J44 included in the IEEE Computing Edge magazine, July 2024 issue.

UIC Today, R. Mitchum, "Pilot research institutes kindle interdisciplinary activity across UIC", Apr. 12, 2024.

UIC Today, R. Mitchum, "NIH grant expands UIC brain bank into citywide effort to study epilepsy, brain cancer", Nov 6, 2023.

"Kiviat defense" project image featured on the cover of the Journal of Imaging Science and Technology, Vol 67 No 6 Nov/Dec. 2023.

UIC College of Engineering Newsletter, D. Brazy, "2023-2024 University Scholars", July 2023.

Textbook inclusions: J34 and J42 work included in B. Preim, R. Raidou, N. Smit, K. Lawonn, "Visualization, Visual Analytics and Virtual Reality in Medicine" 1st Edition - May 15, 2023, Elsevier

UIC College of Engineering, UIC CS News Stories, A. Poet, "Liz Marai wins Test of Time Award", Aug 2021

UIC CS News Stories, A. Poet, "Data visualizations unite water and air", June 2021

University of Illinois Cancer Center, J. Carey, "Computers aiding cancer survival, reducing treatment side effects", June 2021

UIC Today, S. Parmet, "Maximizing cancer survival, minimizing treatment side effects with AI", May 2021

UIC CS News Stories, A. Poet, "How do Values Influence Stay at Home Attitudes During the Covid-19 Health Crisis", June 2020 https://cs.uic.edu/news-stories/how-do-values-influence-stay-at-home-attitudes-during-the-covid-19-health-crisis/

UIC Cancer Center News, C. Colvin, "Marai developing computer programs to aid cancer patients", Nov 2018 http://cancer.uillinois.edu/marai-developing-computer-programs-to-aid-cancer-patients/

UIC News, S. Parmet, "NSF Grant to Fund Advancing Computer Platform", Oct 2018 https://today.uic.edu/nsf-grant-to-fund-advanced-deep-learning-and-visualization-computing-platform

UIC News, M. Brown, "Students Honored in VAST Challenge", Oct 2017 https://today.uic.edu/files/2017/10/10-04-17-newscenter.pdf

"RemBrain" project images featured on the cover of the Journal of Imaging Science and Technology, Vol. 61, No. 6, Nov. 2017

"Data Visualization & Exploration Tools" Bio-IT World 2017 podcast, Jan 2017 https://soundcloud.com/chi-podcasts/bit-pod-marai/s-nNPPn

"Cavern Halos" project image featured in the Computing Research Association Newsletter and call for collaborative REU proposals, Apr 2017

"Tensor Descriptors" project images featured on the cover of the Journal of Imaging Science and Technology, Vol. 60, 2016

CS Degree Hub's "The 50 Most Innovative Computer Science Departments in the U.S." (for my group's work in biology visualization while at Pitt), Y. Laher, December 2014. http://www.computersciencedegreehub.com/50-innovative-computer-science-departments/

"VisWeek 2011: New Compass Activities for New Researchers", A. Tarbox, Conduit Vol. 21(1), May 2012

"Pitt scientists get grant to catalog space data", D. Erdley, Pittsburgh Tribune-Review, July 2011

"Pitt Researchers Tackle Flood of Space Data With $1.6 Million Project", M.Kelly, University of Pittsburgh University Times, May 2011

"Comp sci adds another CAREER award", University of Pittsburgh University Times, Apr 2010

"Rethinking Computer Science education", M. Lane-Ogden, University of Pittsburgh Teaching Times, Sept 2009

"Making moves: Pitt experiment tracks body shifts", M. Cronin, Pittsburgh Tribune-Review, March 2009

"Transformational Research through Modeling and Simulation: Pitt Researchers Tackle Some of the Most Complex Issues of Our Times in New Center", R. Frazier, Pitt Center for Simulation and Modeling Inaugural Brochure, October 2008

"CS224 Final Projects Win @ ACM SIGGRAPH '04", S. Howe, Conduit Vol 13(1), Aug 2004

Invited Presentations

2024 Dagstuhl Pandemic Vis seminar, Feb 2024, ~40 attendees
"Identifying user groups, tasks, and visual media in COVID-19 data visualization projects"

UIC Equitable Health Data Science Research bootcamp, Aug 14th 2024, ~30 attendees
"Introduction to NIH Funding Programs"
"Writing a Successful NIH Proposal"

IEEE VIS 2024 session co-chair, Oct 2024, ~1000 virtual attendees
"Test of Time Awards Vis/SciVis"

University of Texas, MD Anderson Cancer Center, Houston TX, Nov 12th 2024, ~30 attendees
"Bridging Human-Centered Data Science with Real World Problems"

UIC/Google Health Summit, Chicago IL, Nov 21st 2024, ~30 attendees
"Bridging Human-Centered Data Science with Real World Problems"

UIC College of Engineering Dean visit, CS, Nov 22nd 2024, ~50 attendees
"Bridging Human-Centered Data Science with Real World Problems"

2023 NYU Tandon School of Engineering, Computer Science Engineering department, March 8 2023, ~25 attendees
"Bridging Visual Computing Theory with Real World Data & Problems"

UIC Chancellor Elect Miranda College of Engineering visit, EVL, May 2023, ~60 attendees
"Faculty Research Lightning Talk"

IEEE VIS 2023, Workshop on Visualization for Pandemic and Emergency Responses, Melbourne, Australia, Oct 2023, ~30 attendees
"A Lens to Pandemic Stay at Home Attitudes"

IEEE VIS 2023 session chair, Melbourne, Australia, Oct 2023, ~1500 attendees
"Best Paper Awards"

IEEE VIS 2023 session co-chair, Melbourne, Australia, Oct 2023, ~1500 attendees
"Test of Time Awards Vis/SciVis"

Dagstuhl BioVis seminar, Nov 2023, ~40 attendees
"Towards a syllabus for teaching biological data visualization"

2022 Utah Scientific Computing Institute seminar, Jan 26 2022, ~50 virtual attendees
"What Is a Good Visual Explanation of AI?"

WinterGraph'22 (Pan Austrian research meeting), March 7 2022, ~70 attendees, Kitzsteinhorn, Austria
"Visual Computing at the Electronic Visualization Laboratory"

TU Wien, May 13 2022, ~40 attendees, Vienna, Austria
"Grounding Data Vis Theory on Real-World Data and Problems"

University of Vienna, May 16 2022, ~20 attendees, Vienna, Austria
"Grounding Data Vis Theory on Real-World Data and Problems"

VRVis Center, May 19 2022, ~80 attendees, Vienna, Austria
"Immersive Analytics at the Electronic Visualization Laboratory"

Session Co-Chairing, EuroVis 2022, ~300 attendees, June 14 2022, Rome, Italy
"Best Papers Session"

Opening session, EuroVis 2022, ~300 attendees, June 14 2022, Rome, Italy
"Full Papers Program Opening"

UIC CS Doctoral Recruiting Webinar, Nov 2nd 2022, 27 attendees, 450 views/month
"Applying to the Doctoral Program @ UIC CS"

UIC CS Doctoral Recruiting Webinar, Nov 2nd 2022, 27 attendees, 450 views/month
"Visual Computing at UIC CS"

UIC CS Introduction to Data Science Workshop for UIC CS freshmen and sophomores, Nov 12th 2022, ~50 attendees
"Visual Data Science"

2021 University of Illinois at Chicago, Provost's "E+W Research Mixer", Chicago, Jan 2021
"Data Visualization for the Life Sciences", virtual

EuroVis 2021, Zurich, Switzerland, June 2021
"Paper and Reviewer Awards", ~300 virtual attendees

ISMB 2021, BioVis COSI, July 26 2021
"RuleBender: Test of Time Reflection", 360 virtual attendees

Dagstuhl Seminar 21401 Visualization of Biological Data - From Analysis to Communication, Oct 4 2021,
"Collaboration in a Test of Time Project", ~45 hybrid attendees

UI Cancer Center, Dec 2 2021,
"Human-Machine Analysis of Longitudinal Symptoms in Cancer Therapy", ~30 virtual attendees

NYU CSE seminar, Dec 9 2021, ~30 hybrid attendees, NYC, NY
What Is a Good Visual Explanation of AI?

2020 University of Illinois Cancer Center: Cancer Prevention and Control Virtual Retreat, Chicago, June 2020,
"Predicting the Quality of Life of Head and Neck Cancer Patients Based on Disease Location and Extent", virtual

EuroVis 2020, Norrkoping, Sweden, June 2020
"EuroVis Shorts Program: Notes from the Chairs", virtual

IEEE International Conference on AI and VR (IEEE AIVR 2020), Utrecht, The Netherlands, Dec 2020,
"Immersive Analytics at the Electronic Visualization Laboratory", panel, virtual

2019 ISMB 2019, Basel, Switzerland
"Biological Large Scale Data Visualization", 90 people

University of Illinois at Chicago, Faculty Early Career Development Workshop, Chicago, Oct 2019
"Funding and Handling Setbacks", 30 people

2018 Shonan Seminar No 128, Shonan Village, Japan, Nov 2018
"Spatial Patient Similarity in Precision Medicine for Oncological Radiotherapy", 25 people

IEEE VIS'18, Berlin, Germany, Oct 2018
"Precision Risk Analysis Using Nomograms", 300 people

IEEE VIS'18, Berlin, Germany, Oct 2018
"Details-first, Show Context, Overview Last", 200 people

IEEE VIS'18, Berlin, Germany, Oct 2018
"Handling Paper/Proposal Rejections", Success panel, 200 people

BIRS Restructuring VIS for the future, Banff, Canada, June 2018
"Restructuring VIS for the future", 45 people

ISMB 2018, Chicago, IL, July 2018
"Introduction to Biological Data Visualization" tutorial, 65 people

APTESC 2018, Argonne Training Program on Extreme Scale Computing, Aug 2018
"Electronic Visualization", 100 people

Dagstuhl Biological Data Visualization Symposium, Germany, Apr 2018
"Theoretical Foundations of BioNetwork Visualization"

Dagstuhl Foundations of Data Visualization Symposium, Germany, Jan 2018
"Activity-Centered Design"

2017 IEEE VIS 2017, Oct 2017
"Activity-Centered Domain Characterization"

IEEE VIS 2017, Oct 2017
"Panel on Diversity in Vis" workshop

IEEE VIS 2017, Oct 2017
"Panel on Interdisciplinary and Applied Visualization Research"

National Institutes of Health, Bioinformatics and Computational Biosciences Branch NIAID, June 2017
"Big Display Data Visualization at the Electronic Visualization Lab"

U Chicago BioJam, Chicago, Sep 2017
"Visual Computing at the Electronic Visualization Laboratory"

University of Oregon, Eugene, Feb 2017
"Distinguished Math Lecture for Undergraduates: Computer Graphics for Science"

ISMB Great Lakes Bio, Chicago, May 2017
"Tutorial: Introduction to Biology Visualization"

ISMB Great Lakes Bio, Chicago, May 2017
"Biology Visualization at the Electronic Visualization Lab", w/ A. Forbes

Bio-IT World, Boston, May 2017
"Big Display Visualization of Bioinformatics Data"

National Institutes of Health, Bioinformatics and Computational Biosciences Branch NIAID, June 2017
"Big Display Data Visualization at the Electronic Visualization Lab"

2016 Dagstuhl Multi-valued Symposium, Germany, Apr 2016
"Spatial-Nonspatial Integration in Engineering"

IEEE Virtual Reality Workshop on Immersive Analytics, Greenville SC, Mar 2016
"Immersive Analytics at the Electronic Visualization Lab"

Visual Data Analysis 2016, San Francisco CA, Feb 2016
"Visual Descriptors for Dense Tensor Fields in Computational Turbulent Combustion"

Electronic Imaging 2016, San Francisco CA, Feb 2016
"Cavern Halos: Exploring Spatial and Nonspatial Cosmological Data in an Immersive Virtual Environment"

2015 DePaul University, Dept of Computer Science, Chicago IL, Oct 2015
"Geometric Modeling and Visualization for Science"

University of Houston, Dept of Computer Science, Houston TX, Oct 2015
"Geometric Modeling and Visualization for Science"

Grace Hopper Conference, Houston TX, Oct 2015
"UIC BRAID: aiming for 30%", panel

NSF/NIH SAMSI Workshop (20% acceptance), Raleigh, NC, July
"SAMSI DMS Project: SMART"

BioVis'15, Dublin, Ireland, July
"BioVis'15 Awards Ceremony and Closing Remarks"

EuroVA, Sardinia, Italy, May
"Visual Scaffolding in Integrated Spatial and Nonspatial Visual Analysis"

UIC Bioengineering Seminar, Feb
"Geometric Modeling and Visualization for Science"

2014 Dagstuhl Scientific Visualization Seminar, Germany, June

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Dagstuhl Tensor Visualization Symposium, Germany, Feb

University of Maryland Baltimore County, Department of Information Systems, Jan

University of Maryland College Park, Department of Computer Science, Jan

2013 Virginia Tech, Department of Computer Science, Nov

IEEE VIS SciVis 2013, Atlanta, GA, Oct

ATR Institute, Robotics Seminar, Nara, Japan, Sept

MICCAI MedMesh 2013, Nagoya, Japan, Sept

EuroGraphics VMV 2013, Lugano, Switzerland, Sept

New York University Poly, Department of Computer Science, May

Tufts University, Department of Computer Science, March

2012 University of Pittsburgh, Department of Biomedical Informatics, Oct

University of Maryland, Baltimore County, Oct

Pittsburgh Academy for Science and Technology (w/ VisLab), Pittsburgh PA, Jan

CHIA Dataverse Colloquium (w/ cs1630 students), Pittsburgh PA, Mar

2011 Dagstuhl Tensor Symposium, Germany, Dec (prestigious, invitation-only CS workshop sponsored by the German federal government)

IEEE VisWeek 2011, Providence, RI, Oct

AEGIS Colloquium (w/ students T. Luciani and R. Hachey), Pittsburgh PA, July

2010 Carnegie-Mellon Bioimaging Day, Pittsburgh PA, March

Tech Divaz camp, Technology Leadership Initiative, Pittsburgh PA, June

Diversity Workshop (w/ VisLab), Technology Leadership Initiative, Pittsburgh PA, Feb

2009 Georgia Tech & Carnegie-Mellon University Graphics Retreat, Pittsburgh PA, Nov

BMES 2009, Pittsburgh PA, Oct

University of Minnesota, Computer Science, Graphics Group Seminar, Sept

EMBC 2009, Minneapolis MN, Sept

ACM SIGGRAPH Talks, New Orleans LA, August

Dagstuhl Tensor Symposium, Germany, July (prestigious, invitation-only CS workshop sponsored by the German federal government)

Eurographics/IEEE Symposium on Visualization, Berlin, Germany, June

University of Pittsburgh, Center for Simulation and Modeling, January

Carnegie Mellon University, Graphics Group Seminar, March

2008 San Francisco University, Pre-Orthopaedic Research Society Symposium, March

University of Pittsburgh – Carnegie Mellon University, Bioengineering and Bioinformatics Summer Institute, June

Pitt CS Technology Leadership Initiative, July

University of Pittsburgh – Carnegie Mellon University, Computational Biology Program, November

2007 Carnegie Mellon University, Robotics Institute Faculty Lunch Meeting, November

University of New Hampshire, Computer Science, April

Professional Service

2024-2025	IEEE VIS'24 Area Chair, Applications
	IEEE VIS Test of Time SciVis 2024 Co-Chair
	NIH Chartered Study Section member
	IEEE Computer Graphics and Applications Associate Editor
	IEEE VIS VEC Committee Member
	ISMB BioVis Steering Committee Member
	VCBM Program Committee Member
	IEEE VIS'24 Program Committee Member
	External reviewer TVCG, CHI, JAMIA, Nature Communications
2023-2024	IEEE VIS 2023 Best Paper Awards Chair
	IEEE VIS Test of Time SciVis 2023 Co-Chair
	NIH Study Section member
	Frontiers in Bioinformatics Associate Editor
	IEEE Computer Graphics and Applications Associate Editor
	IEEE VIS VEC Committee Member
	ISMB BioVis Steering Committee Member
2022-2023	EuroVis 2023 Best Paper Committee Chair
	Frontiers in Bioinformatics Associate Editor
	VIS VEC Committee Member
	Steering Committee Member, BioVis 2023
	VCBM Program Committee member
	IEEE VIS 2023 Program Committee member
	NIH Study Section member

2022 (sabbatical) Program Co-Chair, EuroVis'22 Full Papers

Guest Editor, Computer Graphics Forum

VIS Executive Committee (VEC)

Associate Editor, Frontiers in Bioinformatics

Steering Committee, BioVis 2022-2023

2021 Program Co-Chair, EuroVis'21 Full Papers

VIS Executive Committee (VEC)

VIS Best Paper Committee

Associate Editor, Frontiers in Bioinformatics

Guest Editor, Computer Graphics Forum

Steering Committee, BioVis 2021

Organizer, Dagstuhl Seminar

Program Committee, EuroVA'21

Session Co-Chair, EuroVis'21 Capstone

Program Committee, VCBM 2021

Program Committee, VIS Short Papers 2021

Reviewer, VIS 2021, CHI 2021, EuroVis 2021, Computers & Graphics

2020 Chair, EuroVis'20 Short Papers

Associate Editor, Frontiers in Bioinformatics

BioVis 2020 Steering Committee

VAST 2020 Best Paper Award Committee

Program Committee, IEEE VIS SciVis

Program Committee, IEEE VIS Short Papers

Program Committee, Electronic Imaging Visual Data Analysis

Program Committee, 10th Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM)

NSF Computing Innovation Fellows 2020 reviewer

NIH panelist

Reviewer CHI 2020, Computer Graphics Forum

2019 Chair, EuroVis'19 Short Papers

Steering Committee, BioVis

ISMB COSI representative, BioVis

Program Committee, IEEE VIS SciVis

Program Committee, IEEE VIS Short Papers

Program Committee, 9th Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM) 2019

Program Committee, EuroVis'19 Posters

Program Committee, Electronic Imaging Visual Data Analysis

Editor Special Issue on Virtual Environments, Frontiers in Robotics and AI

Session Chair, BioVis ISMB COSI 2019

NIH panelist

Austrian Research Agency reviewer

TVCG, CGF, MDPI, Frontiers reviewer

ISMB Tutorial co-organizer

2018 Chair, EuroVis'18 STAR (State of the Art Reports)

Program Committee, Electronic Imaging Visual Data Analysis 2018

Steering Committee, BioVis

Dagstuhl seminar on BioVis Co-organizer (w/ K. Nieselt, N. Gehlenborg, J. Aerts)

Shonan Seminar 128 Co-organizer (last minute replacement for organizer who could not travel)

Editor Special Issue on Virtual Environments, Frontiers in Robotics and AI

Program Committee, IEEE VIS SciVis

Program Committee, BVDA 2018

External reviewer, IEEE VIS VAST

Session Chair, BioVis COSI 2018

Session Chair, SciVis 2018

ISMB Tutorial co-organizer

2017 Steering Committee, BioVis

Program Committee, EuroVis 2017 STAR

Program Committee, Electronic Imaging Visual Data Analysis 2017

External reviewer IEEE VIS SciVis, IEEE VIS VAST, IEEE VIS InfoVis

IEEE TVCG reviewer

NIH Panelist

Bio-IT World 2017 session chair

ISMB Great Lakes Bio 2017 session co-organizer (w/ A. Forbes)

2016 Conference General Co-Chair, BioVis 2016

EuroVis 2016 Program Committee

EuroVis 2016 Short Papers Program Committee

IEEE Virtual Reality 2016 Workshop on Immersive Analytics, Co-organizer and Co-Chair

SuperComputing 2016 Visualization Showcase Program Committee

IEEE VIS 2016 Organizing Committee, Doctoral Colloquium Co-Chair

External IEEE VIS reviewer (SciVis, VAST)

NSF Panelist x 3 times

2015 Doctoral Colloquium Chair and Organizing Committee, IEEE VIS 2015

Short Papers Program Committee, EuroVis 2015

Program Committee, EuroVis 2015

Conference General Co-Chair, BioVis 2015

Keynote Session Chair, BioVis 2015

External paper reviewer, IEEE VIS SciVis 2015, IEEE VIS InfoVis 2015, IEEE VIS VAST 2015

NSF Panelist

2014 Program Chair, BioVis 2014

Associate Editor, BMC Bioinformatics

SciVis Publicity Chair, Organizing Committee, IEEE VIS 2014

Program Committee, IEEE VIS 2014

Program Committee, EuroVis 2014

Program Committee, CompImage 2014

Program Committee, IADIS International Conference on Computer Graphics, Visualization, Computer Vision and Image Processing

2013 Program Chair, IEEE BioVis 2013

Program Committee, IEEE SciVis 2013

Papers Session Chair, IEEE SciVis 2013

Program Committee and Organizing Committee, IEEE BioVis 2013

Program Committee, MICCAI Workshop on Mesh Processing

Program Committee, IADIS International Conference on Computer Graphics, Visualization, Computer Vision and Image Processing

Paper reviewing for IEEE TVCG, IEEE Vis, IEEE InfoVis, EuroVis

NSF Panelist

NSF Panel Ad-hoc Reviewer (external)

Scholarship Application Committee, Grace Hopper Celebration of Women in Computing Conference 2013

2012 Guest-Editor, IEEE Computer Graphics and Applications, Special Issue, Biomedical Applications: From Data Capture to Modeling

Program Committee and Organizing Committee, IEEE SciVis (Vis) 2012

Papers Session Chair, IEEE SciVis (Vis) 2012

Chair, Compass Committee (see 2011) IEEE VisWeek 2012

Organizing Committee, IEEE BioVis 2012

Co-Chair, Industry Committee IEEE BioVis 2012

Program Committee, IADIS International Conference on Computer Graphics, Visualization, Computer Vision and Image Processing

Program Committee, MICCAI Workshop on Mesh Processing

Scholarship Application Committee, Grace Hopper Celebration of Women in Computing Conference

Paper reviewing for IEEE TVCG, IEEE Vis, IEEE InfoVis, EuroVis, IEEE Computer Graphics and Applications, PacificVis

2011 Chair, Doctoral Colloquium, IEEE VisWeek 2011; co-run the Doctoral Colloquium Workshop

Organizing Committee, IEEE VisWeek 2011; beside O.C. duties, created and organized the Compass activities, a highly successful set of networking events for visualization researchers and practitioners.

Panel Organizer, IEEE VisWeek 2011

NSF Graphics & Visualization Panel

Paper reviewing for IEEE Vis

2010 NSF Graphics & Visualization Panel

ACM SIGGRAPH Bioengineering Jury

Paper reviewing for Journal of Biomechanics, IEEE Vis

Scholarship Application Committee, Grace Hopper Celebration of Women in Computing

2009 Paper reviewing for IEEE Vis, IEEE Trans. Biomedical Engineering

Scholarship Application Committee, Grace Hopper Celebration of Women in Computing

2008 Paper reviewing for ACM SIGGRAPH, Journal of Biomechanics

External proposal reviewing for NSF

Scholarship Application Committee, Grace Hopper Celebration of Women in Computing

2007 Scholarship Application Committee, Grace Hopper Celebration of Women in Computing

Paper reviewing for IEEE Trans. On Medical Imaging, IEEE Trans. On Visualization and Computer Graphics, ACM SIGGRAPH, Journal of Biomechanics

pre-2007 Paper reviewing for IEEE Trans. On Medical Imaging, IEEE Trans. On Visualization and Computer Graphics, ACM SIGGRAPH (Sketches and Posters), Journal of Biomechanics

ACM International Programming Competition'97, S-E European Regional Organizing Committee

Teaching and Research Advising

Honors to my students (for work done together)
UIC College of Engineering Exceptional Research Promise award 2024 to A. Wentzel
UI Cancer Center Travel award 2023 to C. Floricel
UIC Honors College Research Grant 2023 award to F. Kamleh
Grace Hopper 2023 Scholarship to S. Srabanti
IEEE VIS 2022 Doctoral Colloquium selection to J. Trelles
UIC Graduate College Outstanding Dissertation Award 2021 to E. Tardini (advisor: X. Zhang)
ISMB 2021 Test of Time Award to A. Smith, W. Xu, Y. Sun
UIC CS Graduate Teaching Assistant Award 2020 to J. Trelles
UIC Chancellor's Undergraduate Research Award 2020-2021 to A.Venturella, M. Perkowski, J.Vega
UIC Chancellor's Undergraduate Research Award 2019 to M. Tran
NSF Graduate Research 2019 Honorable Mention to A. Burks
IEEE VIS 2017 Doctoral Colloquium selection to T. Luciani
IEEE VAST Challenge 2017 Honorable Mention MC2 to J. Castor, J. Borowicz, A. Burks, M. Thomas, T. Luciani
IEEE VAST Challenge 2017 Honorable Mention MC3 to V. Mahida, B. Kupiec, A. Burks, T. Luciani
IEEE VGTC VPG 2016 Outstanding Award to my cs526 students
Tapia 2016 Fellowship to B. Habtegiorgis
Tapia 2016 Fellowship to C. Uribe
UIC CS Scholars' 2016 Fellowship to J. Tapia
IEEE VIS 2016 Doctoral Colloquium selection to C. Ma
Computing Research Association 2016 research fellowship to B. Habtegiorgis, J. Rodriguez, C. Uribe
IEEE VIS 2013 Doctoral Colloquium selection to Md.A. Haque
NSF Graduate Research 2013 Fellowship to T. Luciani
BioVis 2013 Contest Outstanding Paper award to J. Wenskovitch, T. Luciani
LDAV 2012 Outstanding Paper award to T. Luciani, S. Myers
BioVis 2011 Outstanding Paper award to A. Smith, W. Xu

Ph.D. Graduates	Andrew Wentzel, 2024 (Epsilon, Data Science) Juan Trelles, 2023 (Epsilon, Data Science) Timothy Luciani, 2019 (Conversant, Data Science) Chihua Ma, 2018 (Conversant, Data Science) Abed Haque, 2014 (Mathworks)
M.Sc. Graduates	At UIC: Farah Kamleh (UIC PhD program) Nikita Thakur (UI Cancer Center) Andrew Wentzel (UIC PhD program) Peter Hanula (United Airlines, Data Science Center) Juan Trabucco Trelles (UIC PhD program) Ashwin Venkatamaran (Amazon) Filippo Pellolio (HERE, then Google) Davide Tantillo (n/a) Andrea Rottigni (HylaSoft) Jaspreet Kaur Sohal (Rhodium Group) Sai Phaltankar (BMW)

Shubadra Govindan (Wayfair)
Yashika Goyal (Amazon Alexa)
Naveen Kumar (n/a)
Pavana Doddi (n/a)
Ganesh Jagadeesan (Dataminr)
Elisa Tardini (Amazon Search)
Gino Ureta (n/a)
Parikshit Solunke (NYU CSE PhD program)
Matthew Ziminski

At Pitt:
John Wenskovitch, 2014 (Virginia Tech & Allegheny College)
Sean Myers, 2014 (Amazon)
Adrian Maries, 2013 (Harvard, research staff)
Rebecca Hachey, 2013 (Pitt Learning Research and Development Center)
Adam Smith, 2012 (GDVis)
Wen Xu, 2011 (Microsoft)

B.Sc. Graduates (thesis/project)

At UIC:

Farah Kamleh 2022
Michael Tran 2020
Joshua Castor 2019 (Relativity, Inc)
Michal Bochnak 2018 (UIC MS program)
Evan Kreft 2017 (LogicGate)
Revanth Reddy 2016 (UIUC grad program)
Peter Hanula 2016 (UIC grad program)
Brook Habtegiorgis 2016 (Oracle)
Carlos Uribe 2016 (Chase)
Kamil Piekutkowski 2016 (Cummins Allison)
Joshua Rodriguez 2015 (Lockheed Martin)

At Pitt:
Mary Letera 2014 (Philips)
Zach Sadler 2014 (Adknowledge)
Sean Myers 2013 (Pitt CS grad program)
Tim Luciani 2011 (**NSF Graduate Research Fellowship**, UIC CS)
Daniel Oliphant 2010 (Google)
Victor Powell 2010 (YinzCam)
Matthew Seiler 2010 (Bechtel Corporation)
Matthew Czarnek 2010 (Czarnek and Orkin Labs)
Stephen Lauck 2009 (Force and Form)
John Conomikes 2008 (CMU Entertainment Technology Center)

Graduate Research Advising

2024-2025 Andrew Wentzel (doctoral), CS, RA

Carla Floricel (doctoral), CS, self-supported
Sanjana Srabanti (doctoral), CS, TA (co-advised Miranda)
Nafiul Nipu (doctoral), CS, RA/TA
Siyuan Zhao (doctoral), CS, RA
Nasibeh Heshmati (doctoral), CS, RA (successful transfer out to theory group)
Hossein Fathollahian (doctoral), CS, TA/RA
Francesco Botto (masters), CS, RA

2023-2024
Andrew Wentzel (doctoral), CS, RA
Carla Floricel (doctoral), CS, RA
Sanjana Srabanti (doctoral), CS, RA/TA (co-advised Miranda)
Nafiul Nipu (doctoral), CS, TA
Siyuan Zhao (doctoral), CS, TA/RA
Nasibeh Heshmati (doctoral), CS, TA/RA
Hossein Fathollahian (doctoral), CS, TA/RA
Farah Kamleh (masters), CS, TA

2022-2023
Juan Trabucco Trelles (doctoral), CS, RA
Andrew Wentzel (doctoral), CS, RA
Sanjana Srabanti (doctoral), CS, TA/RA (co-advised Fabio Miranda)
Carla Floricel (doctoral), CS, RA
Nafiul Nipu (doctoral), CS, RA
Matt Ziminski (masters), CS
Nikita Thakur (masters), CS

2021-2022 (sabbatical)
Juan Trabucco Trelles (doctoral 6th year), CS, RA
Andrew Wentzel (doctoral 4th year), CS, RA
Sanjana Srabanti (doctoral 3rd.5 year), CS, TA/RA (co-advised Fabio)
Carla Floricel (doctoral 3rd year), CS, RA
Nafiul Nipu (doctoral 3rd year), CS, RA

2020-2021
Juan Trabucco Trelles (doctoral 4th year), CS, RA+TA
Andrew Wentzel (doctoral, 1st year), CS, RA
Sanjana Srabanti (doctoral 1st year), CS, RA
Carla Floricel (doctoral 1st year), CS, TA+RA
Md. Nafiul Nipu (doctoral 1st year), CS, TA+RA
Pavana Doddi (masters), CS
Naveen Kumar (masters), CS
Parikshit Solunke (masters), CS
Gino Uribe (masters), CS
Elisa Tardini (masters), CS, RA joint w/ X. Zhang

2019-2020
Juan Trabucco Trelles (doctoral 3rd year), CS, TA
Andrew Wentzel (masters), CS, RA
Sanjana Srabanti (doctoral 1st year), CS, RA
Carla Floricel (doctoral 1st year), CS, TA
Md. Nafiul Nipu (doctoral 1st year), CS, TA
Mirko Mantovani (masters), CS, -
Ganesh Jagadeesan (masters), CS, RA

2018-2019	Timothy Luciani (doctoral, fourth year at UIC), CS, RA Juan Trabucco Trelles (doctoral 2nd year), CS, RA Andrew Wentzel (masters), CS, RA Ganesh Jagadeesan (masters), CS, RA Jaspreet Kaur Sohal (masters), CS, - Sai Phaltankar (masters), CS, TA Shubadra Govindan (masters), CS, - Yashika Goyal (masters), CS, -
2017-2018	Timothy Luciani (doctoral, 6th year), CS, NSF GRF Chihua Ma (doctoral, 6th year), CS, RA, co-advised w/ Bob Kenyon Juan Trabucco Trelles (doctoral, 1st year), CS, RA Manu Thomas (masters), CS, RA Peter Hanula (masters), CS, RA Adhokshith Datta (masters), CS, TA, RA Ramnarayan Vanya (masters), CS, RA
2016 - 2017	Timothy Luciani (doctoral, 5th year), CS, NSF GRF Chihua Ma (doctoral, 5th year), CS, RA, co-advised w/ Bob Kenyon Manu Thomas (masters), CS, RA Juan Trabucco Trelles (masters), CS, RA Peter Hanula (masters), CS, RA Mat Monford (doctoral), CS, RA w/ Brian Ziebart Sneha Tuteja (masters), CS, RA
2015 – 2016, at UIC	Timothy Luciani (doctoral, 4th year), CS, NSF GRF Chihua Ma (doctoral, 4th year), CS, RA, co-advised w/ Bob Kenyon Filippo Pellolio (masters), CS, RA Davide Tantillo (masters), CS, RA w/ Andy Johnson Andrea Rottigni (masters), CS, RA w/ Andy Johnson Shiwangi Singh (masters), CS, TA Ashwin Venkatamaran (masters), CS, RA
2013 –2014, at Pitt	Abed Haque (doctoral, 6th year), Tim Luciani (doctoral, 2nd year), John Wenskovitch (doctoral, 3rd year), Sean Myers (masters)
2012 – 2013	Abed Haque (doctoral, 5th year), Adrian Maries (transfer to MSc program), Tim Luciani (doctoral, 2nd year), John Wenskovitch (doctoral, 2nd year), Sean Myers (masters) Directed study: Xiaoming Fan (doctoral 1st year), Koonwah Chen (SIS masters)
2011 – 2012	Abed Haque (doctoral, 4th year), Adrian Maries (doctoral, 4th year), Adam Smith (masters), Tim Luciani (doctoral, 1st year), Rebecca Hachey (masters) Directed study: John Wenskovich (doctoral, 1st year, co-advised)
2010 – 2011	Abed Haque (doctoral, 3rd year), Adrian Maries (doctoral, 3rd year), Adam Smith (masters), Wen Xu (masters 2011, Microsoft) Directed study: Callen Shaw (masters), Andrew Conn (masters)
2009 – 2010	Abed Haque (doctoral, 2nd year), Adrian Maries (doctoral, 2nd year), Yao Sun (doctoral, 2nd year; *masters 2012, Amazon*), Wen Xu (masters)

2008 – 2009	Abed Haque (doctoral, 1st year), Sriranjani Mandayam (doctoral, 1st year, *masters 2010 School of Information Sciences*), Yao Sun (doctoral, 1st year) Directed study: Wenting Xiong, David Krebs, Adrian Maries
2007 – 2008	Yinglin Sun (doctoral, 2nd year, *masters 2011, N/A*) Directed study: Michael Lipschultz
Pre-2007	Directed study: Peter Sibley (Brown University), Phil Montgomery (Brown University)

Undergraduate Research Advising

2023-2024	David Rios (sophomore, GPIP) Rayyan Rashid (sophomore, GPIP) Yuseph Shilleh (sophomore, GPIP)
2022-2023	Bobo Lin (highschool student, Cancer Center summer program; gone to MIT CS major)
2021-2022 (sabbatical)	Farah Kamleh (senior) Paige Savarese (sophomore)
2020-2021	Anthony Venturella (senior) Jonathan Vega (senior, Native American) Marcin Perkowski (senior) Farah Kamleh (junior, HC) Gina Gerace (senior, HC) William Berios (Universidad Nacional de Ingenieria, Peru Student Research program, senior, Hispanic) (total: 6 REUs, four from under-represented groups)
2019-2020	Michael Tran (senior, CoE CURA) Shyam Patel (senior, -)
2018-2019	Michael Tran (senior transfer, CoE GPIP) Rafiya Awan (sophomore, CoE GPIP) Darian Danciu (sophomore, CoE GPIP)
2017-2018	Andrew Burks (senior, private donor) Isabel Lindmae (junior, private donor) Dimitar Kirilov (junior, NSF, w/ Dan Sandin) Bart Kupiec (junior, NSF, w/ Dan Sandin) Joshua Castor (junior, startup) Joe Borowicz (junior, NSF, w/ Barbara di Eugenio and Andy Johnson) Vijayraj Mahida (junior, NSF, w/ Barbara di Eugenio and Andy Johnson) (total: 7 REUs, one female)

2016-2017	Michal Bochnak (sophomore, Honors College) Andrew Burks (junior, NSF REU) Jacqueline Tapia (sophomore, NSF REU) Dennis McNamara (junior, NSF REU) Cassiano Sugiyama (senior, Brazilian Mobility Program) Tyrone Harris (junior, NSF REU) (total: five REUs, two Hispanic, one African American)
2015-2016, at UIC	Joshua Rodriguez (senior, NSF REU, co-advised w/ Lance Long, EVL) Carlos Uribe (senior, startup) Kamil Piekutowski (senior, NSF REU) Brook Habtegiorgis (junior, NSF REU) Evan Kreft (senior, NSF REU) Peter Hanula (senior, NSF REU) Revanth Reddy (senior) Nabeelah Khan (junior) (total: six NSF REUs, two Hispanic, one African American)
2013 -- 2014	Mary Letera, Tyler Raborn
2012 – 2013	Sean Myers, Zach Sadler
2011 – 2012	Tim Luciani, Daniel Walker, Jordan Sawyer, Sean Myers, Ben Steele
2010 – 2011	Daniel Oliphant, Victor Powell
2009 – 2010	Daniel Oliphant, Matthew Seiller
2008 – 2009	Stephen Lauck, Victor Powell, Jackie Kircher
2007 – 2008	Matthew Czarnek, John Conomikes
Pre-2007	Ethan Bromberg (Brown University), Arni Jonsson (Brown University)

Examiner/Reader (Comprehensive Examinations, Thesis Committees)

2024-2025	Andrew Wentzel, PhD thesis defense, Dec 2nd 2024, chair Nafiul Nipu, PhD prelim defense, Nov 15th 2024, chair Sanjana Srabanti, PhD prelim defense, Nov 4th 2024, co-chair
2023-2024	Juan Trelles, PhD thesis defense, chair Gustavo Moreira March 2024, WCP Sajal Chandra Apr 26 2024, MS report Farah Kamleh Apr 26 2024, MS report
2022-2023	Nikita Thakur, MS project, advisor Matt Ziminski, MS project, advisor Neal Chawla, MS project, reader Ja Eun Yu, prelim, committee, Dec. 20 2022 Kazi Omar, WCP, chair, Feb 28 2023 Juan Trelles, PhD thesis proposal, chair, Apr 29 2022

2022 (sabbatical)	Jillian Aurisano, PhD thesis defense, committee
	Krishna Bharadwaj, PhD thesis defense, committee
	WCP: Shaika Chowdury
	Pengyuan Li, PhD thesis defense, U Delaware, "Identifying, extracting, and utilizing image information within biomedical publications"
	Juan Trelles, PhD Proposal (prelim examination), Chair
2021	WCP: Carla Floricel "Patient Timelines in Visual Analytics", Committee
	WCP: Nafiul Nipu "Analyzing Different Parameters, Methodologies, and Multi-linked Visual Encodings in Ensemble Visualization", Committee
	WCP: Andrew Wentzel "Visualization Tools for Interpretable Machine Learning", Committee
	WCP: Kostantinos Solomos "Web Tracking and Browser Fingerprinting: Longitudinal Analysis, Evolution and Defenses", Committee
	MS Project: Naveen Kumar, "Visualizing data collected from Fitbit Wearables & Smart scales", Advisor & Chair
	MS Project: Pavana Doddi, "Chicago Crime Analytics", Advisor & Chair
	MS Project: Gino Ureta, "Collection Curation Pipeline for Allen Institute Dataset", Advisor & Chair
	MS Project: Solunke, Parikshit, "EuroVis Committee Network Visualization", Advisor & Chair
	MS Project: Elisa Tardini, "Recursive deep meta-reinforcement learning for personalized sequential dynamic treatment policies", Mentor & Committee
2019-2020	John Wenskovitch, PhD Defense, CS Virginia Tech, "Dimension Reduction and Clustering for Interactive Visual Analytics", Aug 14 2019
	Pengyuan Li, Qualifying Exam (Thesis Proposal), U Delaware, "Identifying, extracting, and utilizing image information within biomedical publications", June 6 2019
	WCP: Andrew Burks "Supporting Human Decision-Making through Large Displays, Comparison, and Uncertainty Visualization", Chair
	WCP: Shreyas Kulkarni "Mixed Reality in Image Guided Surgery", Chair
	MS Project: M. Mantovani "Visual Encoding Effectiveness in Multivariate Data Similarity Detection", Chair

2018-2019

WCP: Juan Trelles "Models for Explaining Unfamiliar Visualizations to Non-Expert Audiences"

MS Project: P. Hanula "A Patient Similarity-Based Method for Predicting Radiation Dosage in Head and Neck Radiation Oncology"

Honors Project: M. Bochnak "A simple mobile platform 2D videogame"

MS Project: Sai Phaltankar, "Identifying Opioid Abuse in Chicagoland"

MS Project: Shubadra Govindan, "Visualizing UMLS Metathesaurus"

MS Project: Jaspreet Kaur Sohal, "Englewood Data Analytics"

MS Project: Yashika Goyal, "Cancer Disparities in Chicago"

PhD Defense: Tim Luciani, "Problem-Driven Design Strategies for Scientific Data Visualization"

MS Thesis: Tomasso Massari, "Collaborative Project Planning Using Large Format Displays"

MS Project: Sankul Rawat, "AilNet: Fine-grained emotion detection in health-related posts"

John Wenskovitch, Qualifying Exam, Virginia Tech, "Combining Dimension Reduction and Clustering Algorithms for Interactive Exploratory Data Analysis"

2017 - 2018

Chihua Ma (PhD Defense), Feb 2018
Visual Analysis Techniques for Spatial-Nonspatial, Dynamic, Multi-Scale and Multi-Run Biological Networks

Manu Thomas (MS Defense), May 2018
Exploring Deep Learning Techniques for Real-time graphics

Simone Amico (MS Defense), May 2018
ETNA: a Virtual Reality Game with Affective Dynamic Difficulty Adjustment based on Skin Conductance

AB Musa (PhD Defense), May 2017
Advanced Techniques for Localization and Tracking

2016- 2017

Tim Luciani (PhD Proposal), July 2017
Spatial and Non-Spatial Visualization in Computational Biology

Chihua Ma (PhD Proposal), June 2016
Visual Analysis Techniques for Spatial-Nonspatial, Dynamic, Multi-Scale and Multi-Run Biological Networks

Manuel Tanzi (MS Defense), Dec 2016
Visualization of Neurophysiological Dynamic Communities within the Mouse Brain

Yiji Zhang (WCP), March 2017
Automatically Localizing Faults in Software Applications

Juan Trabucco Trelles (MS Defense), March 2017
CAVE2 comparison of 1st & 3rd user perspectives in virtual motor rehabilitation tasks

Mohammad Taha Khan (WCP), March 2017
Packets Lost in the Wild: An Analysis of Empirical Approaches to Measure Internet Censorship

2015- 2016, at UIC

Filippo Pellolio (MS Defense), Apr 2016
SAGEBoard: a Whiteboard for Large Multitouch Displays

Andrea Rottigni (MS Defense), Apr 2016
Serious Games for Virtual Rehabilitation in a Large Scale Virtual Reality Environment

Davide Tantillio (MS Defense), Apr 2016
Large Multi-Touch Vertical Displays in Multi-User Competitive Tasks

Tim Luciani (WCP), Apr 2016
Spatial and Non-Spatial Visualizations in Computational Biology

Jillian Aurisano (WCP), Apr 2016
Supporting sensemaking in visual data analysis

Lei Zheng (WCP), Mar 2016
Deep Learning for Recommender Systems

Matteo Palvarini (MSc), Dec 2015
RoomCast: an Authoring Environment and Runtime System for Classroom Orchestration of Digital Resources

Tomas Gerlich (PhD Proposal)
Multi-Motion Segmentation and Epi-Flow Estimation with a Static Camera

Shreya Gosh (WCP)
Analyzing Importance of Node Based on Node Deletion and Node Contraction

Darya Filippova (CMU, PhD Defense), July 2015
Algorithms for identification, visualization, and compression of prominent substructures in biological data

2013 – 2014 Xiang Xiao, Qinglan Li, Adrian Maries, Abed Haque, Sean Myers, Tim Luciani, Darya Fillipova (CMU)

2012 – 2013 Becca Hachey, Patrick Dudas, Yingze Wang, Eric Heim

2011 – 2012 Abed Haque, Michal Valko, Roxana Gheorghiu, Yingze Wang, Iyad Batal

2010 – 2011	Wen Xu, Abed Haque, Adrian Maries, Mike Lipschultz, Michal Valko, Roxana Gheorghiu
2009 – 2010	Ricardo Villamarin
2008 – 2009	Michal Valko, Ricardo Villamarin, Tomas Singliar
2007 – 2008	Tomas Singliar, Qinglan Li

Courses Taught at UIC

CS529 Visual Data Science (2019, 2020, 2022, 2023)

CS594 Special Topics: Visual Data Science (2018)

CS342 Software Design (2017)

CS526 CG II: Scientific Visualization (2016)

CS426 Videogame Design (2016, 2017, 2018, 2019, 2020, 2024)

CS422 User Interface Design and Programming (2015)

CS522 Human Computer Interaction (2015)

2024 Spring	cs426 “Videogame Design” Evaluations, Response rate (grad section): 4.7 instr., 4.7 course, 10/10 response rate, 10 enrolled Evaluations, Response rate (ugrad section): 4.25 instr., 4.28 course, 40/43 response rate, 43 enrolled
2023 Fall	cs529 “Visual Data Science” Evaluations, Response rate: 4.21 instr., 4.38 course, 29/29 response rate, 29 enrolled
2022 Fall	cs 529 “Visual Data Science” Evaluations, Response rate: 3.51 instr., 3.44 course, 43/44 response rate, 44 enrolled (course did not scale up well with emergency MS increase in enrollment)
2020 Fall	cs 529 “Visual Data Science” (fully online, synchronous) Evaluations, Response rate: 4.4 instr., 4.6 course, 20/22 response rate, 22 enrolled
2021 Spring	cs 426/des 426 “Videogame Design” (fully online, synchronous) Evaluations, Response rate: 4.33 and 3.7 instr. (ugrad and grad), 4.11 and 3.55 course (ugrad and grad), 44/50 and 9/9 response (ugrad and grad), including 3 DES ugrads and 4 DES grads **CoE Teaching Award** for effective teaching during the COVID-19 pandemic
2020 Spring	cs 426 “Videogame Design” (smooth transition to fully online, synchronous, Mar 2020) Evaluations, Response rate: 4.37 instr., 4.41 course, 59/60 response

2019 Fall	cs 529 "Visual Data Science" Evaluations, Response rate: 4.35 instr., 4.22 course, 24/25 response rate, 25 enrolled
2019 Spring	cs 426 "Videogame Design" Evaluations, Response rate: 4.26 ugrad, 35/36 response rate Evaluations, Response rate: 4.6 grad, 5/5 response rate
2018 Fall	cs 594 "Special Topics in CS: Visual Data Science" Response rate/Enrollment: 31/31 Evaluations: 4.68 /5 First time class offered, designed from scratch. Class full w/in 24 hours of registration opening. 14 final projects with external "clients" (domain scientists on and off campus).
2018 Spring	cs 426 "Videogame Design" Response rate/Enrollment: 35/37 Evaluations: 3.14 First time class offered both terms. First class in many years to feature collaboration with Art students (in Snow Fu's UIC New Media Game Play course); mixed results, but encouraging. 12 final projects.
2017 Fall	cs 426 "Videogame Design" Response/Enrollment: 42/44 Evaluations: 3.8 Class full again with CS undergrads and one design student. 15 final projects.
2017 Fall	cs 527 "Computer Animation" Evaluations: 4.73 Response rate/Enrollment: 11/11 Rarely offered course taught as service to EVL; designed from scratch.
2017 Spr	CS342 "Software Design" (required course) Enrollment: 70 after add/drop period (69 retained) Evaluations: 4.05/5 (65 responses out of 66) Redesigned the syllabus from scratch, to accommodate an active learning style that keeps students engaged despite little prior exposure to Java, and to allow a heavier emphasis on the software design process. The redesigned course emphasizes similarities between Java and C++, requirements analysis, functional specs, object-oriented design principles, collaborative tools, usability testing, teamwork, project management, and communication in the workplace, "soft skills" to make our undergraduates more competitive on the job market.
2017 Spr	CS426 "Videogame Design" Enrollment: Class full with 48 students enrolled (40 retained). Evaluations: 3.5/5 (37 responses out of 40) Class bursting at the seams w/ CS undergrad enrollment (no room for Artists, only two grad students). 13 final projects, including one serious game on anesthesiology training.

2016 Fall CS526 Scientific Visualization.
Small seminar class with 9 students enrolled (9 retained).
Evaluations: 4.67/5 (9 responses out of 9)
Seminar covering the nuts and bolts of scientific visualization. 8 final projects with external "clients (domain scientists on and off campus). IEEE VGTC VPG Outstanding Award to the entire class for a three-week project analyzing the seasonal distribution and usage of student test centers across the US. Students and instructor honored at the VPG reception at IEEE VIS 2016.

2016 Spr CS426 Videogame Design.
Class full with 50 students enrolled (31 retained).
Evaluations: 3.73/5 (31 responses out of 31)
Interdisciplinary course with emphasis on teamwork. Content extended to accommodate the enrollment of UIC Art and Design undergraduate students. Initiated collaboration with UIC English majors interested in creating media content for videogames. 10 final projects, including one serious game on physical rehabilitation.

2015 CS522 Human Computer Interaction.
Class full with 35 students enrolled (30 retained).
Evaluations: F.A.-voided due to large, reprimanded cheating incident among MS students.
Redesigned the syllabus, assignments, projects and exams to encourage interdisciplinary collaboration, teamwork, and service to the campus. 15 successful final projects with campus clients.

2015 CS422 User Interface Design and Programming.
Class full with 45 students enrolled.
Evaluations: 4.42/5 grad section, 4.13/5 undergrad section (40 responses out of 42)
Enrollment: 45 enrolled, 42 retained (14/15 grad, 28/30 undergrad).
Redesigned the syllabus, assignments, projects and exams to encourage interdisciplinary collaboration, teamwork, and service to the campus. 15 successful final projects with campus clients.

Courses Taught at U of Pittsburgh

CS2620 Interdisciplinary Modeling and Visualization (2009, 2011, 2012, 2014)
CS1566 Introduction to Computer Graphics (2008, 2009, 2010, 2011, 2012, 2013)
CS3610 Special Topics in Computer Graphics (2008, 2010, 2013)
CS1699 Special Topics in CS: Software Engineering and Project Management (2010)
CS1666 Principles of Videogame Design and Implementation (2011, 2013, 2014)
CS1630 Software System Design and Management (2012)

2013 – 2014 CS1666 Principles of Videogame Design and Implementation. Content further extended to accommodate English majors interested in creating content for videogames. The students worked in interdisciplinary teams.

CS1566 Introduction to Computer Graphics. Class full with 48 students enrolled. Class format modified to allow in-class student skits on Computer Graphics select topics. Content further extended to include GPU programming.

CS2620 Interdisciplinary Modeling and Visualization. Class full with 18 students enrolled.

2012 – 2013 CS3610 Advanced Topics in Computer Graphics. Seminar-level course in Visualization, class full with 17 graduate students enrolled and one auditing. One final project leads to an IEEE BioVis 2013 Data Contest Visualization Award in Oct 2013. Pitt CS **Teaching Award Nomination**.

CS1666 Principles of Videogame Design and Implementation. Content further extended to accommodate usage of the Unity game engine, and the enrollment of undergraduate students interested in creating Visual Art for videogames. Continued collaboration with English majors interested in creating media content for videogames.

CS1566 Introduction to Computer Graphics. Content further extended to accommodate a virtual camera programming assignment. Outstanding final projects. Highest OMET scores and evaluations since class first taught.

2011 – 2012 CS2620 Interdisciplinary Modeling and Visualization. One of the final interdisciplinary projects makes the shortlist in the Desire2Learn Edge Challenge ($25K industry competition challenging developers to build apps that improve the experience of teachers, students and administrators), and another one grows into a system demonstration at IEEE Visualization 2012. Pitt CS **Teaching Award**.

CS1630 Immersive Software-System Design and Management. Two large scale software projects resulted from this edition of the course: a prototype system for mining history, disease and climate data (commissioned by the Pitt History Department, successfully demonstrated at the CHIA Dataverse Colloquium'12), and an automated homework submission and grading system for the Pitt Academy of Science and Technology (product described as "perfect" by the commissioner.)

CS1566 Introduction to Computer Graphics. Content further extended to accommodate a ray-tracing programming assignment. For the first time ever, Pitt students were able to complete a simple *ray-tracer* (cornerstone of computer graphics education, featuring complex math and programming) as part of their coursework.

2010 – 2011 CS2620 Interdisciplinary Modeling and Visualization. Four short papers and system demonstrations resulting from interdisciplinary projects in this class were accepted into IEEE VisWeek 2011.

CS1666 Principles of Videogame Design and Implementation. I redesigned this course from scratch to emphasize the cross-disciplinarity of videogame design (artistic design, creative writing, and computer science). Pitt CS **Teaching Award**.

CS1566 Introduction to Computer Graphics. Updated the course with a speaking component: 5-minute student-pitches each class. Excellent final projects, followed by increased enrollment in the Videogame course CS1666.

2009 – 2010 CS1699 Immersive Software-System Design and Management. I developed this senior-level undergraduate course on software engineering in accordance with the Pitt Speaking in the Disciplines guidelines. The course emphasizes project management, usability testing, customer interviewing, specification of formal requirements, and oral communication, "soft skills" which will make our graduates more competitive in the global marketplace and less susceptible to off-shoring. Pitt CS **Teaching Award, top 4% courses in the School of A&S.**

CS1566 Introduction to Computer Graphics. Course content further extended to accommodate a ray-object intersections math and programming assignment. For the first time ever, Pitt students were able to compute ray-object intersections (complex math, and building block towards ray-tracing). Impressive gallery of final projects.

CS3610 Advanced Topics in Computer Graphics. I taught a new edition of the course, with emphasis on Visual Analytics and Human-Computer Interaction. The course follows the Pitt Speaking in the Disciplines guidelines to help students develop their oral communication skills. Student feedback indicates success.

2008 – 2009 CS2620 Interdisciplinary Modeling and Visualization. I developed and taught this graduate course for the first time in this lecture/assignments/final project format. The course emulates the process of scientific research, from a peer-reviewed proposal to a final report and presentations. Several projects resulted in publications and/or long-term interdisciplinary collaborations. Pitt CS **Teaching Award, top 4% courses in the School of A&S.**

CS1566 Introduction to Computer Graphics. I updated this undergraduate course to further emphasize modeling and simulation concepts; including a hot-topic GPU programming component. 100% student retention. The final projects were so compelling, I was asked to talk about this course at SIGGRAPH 2009.

2007 – 2008 CS3610 Advanced Topics in Computer Graphics. I developed and taught this graduate course for the first time this year. In it, students learned the basics of scientific modeling and visualization and emulated the process of doing interdisciplinary research by working in multi-disciplinary teams on scientific problems. The groups for each project were required to have participants from multiple disciplines, exposing them to many of the skills required for multi-disciplinary collaborative work. Pitt CS **Teaching Award.**

CS1566 Introduction to Computer Graphics. I gave this undergraduate course a much-needed re-haul. Updates include a completely new syllabus with sections on photorealism, video game design, image processing, color perception, and user interfaces.

Pre-2007 Interactive Computer Graphics (Brown University CS 224, 2004). I co-designed and co-taught the 2004 edition of this research-oriented graduate level class. Full class responsibility, shared with fellow graduate students Morgan McGuire and Tomer Moscovich.

Curriculum Development

At UIC

Proposed cross-listing of CS426 as DES426 (Videogame Design and Implementation); approved 2018.

New temporary graduate course proposed and approved: CS594 Visual Data Science; 2017

New permanent graduate course proposed and approved: CS529 Visual Data Science; 2018

At Pitt

Created and proposed *Immersive Software System Design and Management* (CS 1630); approved 2010.

Proposed *Immersive Software Engineering*, Provost's ACIE award, 2009

Designed and proposed *Interdisciplinary Modeling and Visualization* (CS 2620); approved 2008.

Co-designed and co-proposed *Principles of Computer Game Design and Implementation* (CS 1666), approved 2007.

University Service at UIC

2024-2025 Director of Graduate Admissions, Co-Director of Graduate Studies, and Chair of Graduate Admissions Committee
P&T Committee
Faculty Mentor to Wei Tang, Saeed Boor Boor

EHDS Institute cross-college bootcamp organizer, Aug 2024
UIC Senate Research Committee member
UIC Senate member
Discovery Partners Institute (DPI) Executive Committee member
Discovery Partners Institute member
Honors Council member 2024-2027
Honors Fellow 2021-2024
UIC Cancer Center full member
Data Science Institute committee

2023-2024 Director of Graduate Admissions and Graduate Admissions Committee Chair, CS department
Co-Director of Graduate Studies, CS department
Faculty Search Committee, CS department
P&T Committee, CS department, including teaching peer-evaluation
CS+Design program advisory committee
CS Formal Mentor to one junior faculty

UIC Senate member
UIC Honors Fellow
UI Cancer Center member
Discovery Partners Institute Member

2022-2023	Director of Graduate Admissions and Graduate Admissions Committee Chair, CS department Co-Director of Graduate Studies, CS department Graduate Committee, CS department P&T Committee, CS department, including teaching peer-evaluation Hosted Dr. Guadalupe Canahuate (U Iowa) during her sabbatical leave Hosted Dr. Canahuate CS Seminar Hosted visit and colloquium by Maria Roussou (National and Kapodistrian University of Athens, Greece), May 3rd 2023 CS Formal Mentor to one junior faculty CS+Design program advisory committee UIC CoE Associate Dean of Graduate Studies search committee UIC Data Science Institute committee UIC Senate member UIC Honors Fellow UI Cancer Center member Discovery Partners Institute member
2021-2022 (sabbatical)	UIC Honors Fellow 2021-2022 UI Cancer Center full member UIC CoE Associate Dean of Graduate Studies search committee CS+Design program advisory committee Discovery Partners Institute Member
2020-2021	UIC Honors College Fellow UI Cancer Center full member UIC Campus Research Board Discovery Partners Institute Member College of Engineering Associate Dean for Graduate Studies Search Committee CS Advisory Committee CS Graduate Committee CS Promotion & Tenure Committee CS Formal Mentor to three junior faculty
2019-2020	UIC Honors College Fellow UI Cancer Center full member UIC Campus Research Board CS Faculty Search Committee CS Advisory Committee CS Promotion & Tenure Committee CS Formal Mentor to three junior faculty CS Hosted Distinguished Lecturer (Anders Ynnerman, Linkoping U)
2018-2019	UIC Honors College Fellow UI Cancer Center full member UIC Campus Research Board CS Undergraduate Advising CS Graduate Admissions Committee CS Faculty Search Committee CS Promotion & Tenure Committee CS Formal Mentor to one junior faculty
2017-2018	UIC Honors College Fellow UI Cancer Center full member

UIC Campus Research Board
CS Hosted Distinguished Lecturer (Amitabh Varshney, UMD)
CS Ad-hoc Undergrad Advising Committee (40 one-on-one advisee appts instead of 20)
CS Faculty Search Committee, as department grows by 25%

2016-2017 CS Undergraduate advising
CS Graduate Admissions Committee
CS Undergraduate Committee
UIC Honors College Fellow
Co-hosted Distinguished Lecturer (Sheelagh Carpendale, Calgary U)

2015-2016 CS Undergraduate advising
CS Graduate Admissions Committee
Hosted Distinguished Lecturer (Claudio Silva, NYU)
GHC'15 WiCS escort, Oct 2015
UIC Open House EVL demos, Oct 2015
CS Undergraduate advising

2015 CS W-ACM Women's Student ACM Chapter, Advisor
CS Graduate Admissions Committee
CS Co-Hosted Distinguished Lecturer (Tamara Munzner, UBC)
Organized cs422 undergraduate demos for U of Illinois new president, May 2015
Organized cs422 undergraduate demos for CS Advisory Board, May 2015
Selected, hired and supervised 6 REUs, three of which are minority students
Marshalled CS commencement

University Service at Pitt

2013 – 2014 Women in Computer Science Committee, Co-Chair; diversity advising.
Undergraduate Recruiting and Advising Committee; CS major advising.
Graduate Evaluation, Assignment and Training Committee
Center for Simulation and Modeling (SAM) Advisory Board

2012 - 2013 Women in Computer Science Committee, Co-Chair; bi-monthly events
Undergraduate Recruiting and Advising Committee; besides advising, paired each diversity student advised with mentors from the Women in Computer Science community
Graduate Evaluation, Assignment and Training Committee; recitation and lab visits, evaluation and feedback to the Graduate TAs
Center for Simulation and Modeling (SAM) Advisory Board

2011 - 2012 Women in Computer Science faculty advisor and coordinator; bi-monthly events
Center for Simulation and Modeling (SAM) Advisory Board
Hosted CS "Big Data" Colloquium speakers: James Faeder (Computational Biology), Harry Hochheiser (UPMC Bioinformatics), Peter Brusilovsky (ISP), Jeffrey Newman (Astronomy), Levent Yilmaz (Engineering), Vanathi Gopalakrishnan (UPMC Bioinformatics)

2010 - 2011 Co-Chair, Distinguished Lecture Series; raised Google funding for the series
Chair, CS Colloquium
Women in Computer Science faculty advisor and coordinator; bi-monthly events

Chair, Diversity Committee; helped recruit two Hot Metal Bridge fellowships to the CS department

2009 - 2010 Center for Simulation and Modeling (SAM) Advisory Board
Hosted Colloquium speakers: Aaron Henderson (Studio Arts), Jeff Newman (Astronomy), Michael Wood-Vasey (Astronomy), William Anderst (Orthopaedics), Chris Johnson (Utah), Claudia Mello-Thoms (UPMC Bioinformatics)
Center for Simulation and Modeling (SAM) Advisory Board
Chair, CS Colloquium; helped recruit Kitware to the Pitt CS Industry Board
CS Outreach Committee; marketing departmental accomplishments via the CS website, posters, fliers etc.
CS-Day Committee; organizer Digital Media Contest
Women in Computer Science (WiCS) faculty-coordinator; regular meetings and outreach activities
Technology Leadership Initiative Advisory Board; workshop-organizing for under-represented and under-served high-school students
Hosted CS Colloquium speakers: Marcus Hanwell (Kitware Inc), Morgan McGuire (NVIDIA)

2008 - 2009 Center for Simulation and Modeling (SAM) Advisory Board
CS Colloquium Chair; helped increase corporate support for Distinguished Lecture Series from 0 to 2
Hosted CS Colloquium speakers: Joseph Konstan (Distinguished Lecturer; U. Minnesota), Fernando DeLaTorre (CMU)
CS Graduate Admissions and Financial Aid Committee
CS-Day Committee; co-organizer Digital Media Contest
CS Outreach (ad hoc) Committee; helped with international recruiting and departmental website redesign
Women in Computer Science (WiCS) faculty-coordinator; bimonthly meetings including industry guests, and outreach activities
Hosted seminar-speakers: M. Renieris (Google), M. Friedman (Public Health), M. Hanwell (Chemistry), J. Faeder (Computational Biology), G. Mustata (Drug Discovery Institute), M. Wood-Vassey and J. Newman (Astronomy).

2007 - 2008 Center for Simulation and Modeling (SAM) Organizational Committee
Women in Computer Science (WiCS) Coordinator and founder
Bioengineering and Bioinformatics Summer Institute (BBSI) Mentor
Hosted seminar-speakers: M. Renieris (Google), S. Tashman (Pitt Medical School Orthopaedics), S. Leuba (Pitt Biophysics), G. Hutchison (Chemistry), J. Faeder (Computational Biology), and N. Ebenreuter (CMU Design)
CS Graduate Admissions and Financial Aid Committee; excellent admissions record
CS Faculty Search Committee
CS-Day Committee; co-organizer Digital Media Contest
CS Outreach (ad hoc) Committee; helped with international recruiting and departmental website redesign

Memberships

ACM, IEEE, ISCB.