In this poster we present a prototype conversational visual data analysis system. Our prototype was developed from a corpus consisting of 15-subjects engaging in exploratory data visualization with a simulated conversational interface. It features 1) speech to visualization pipeline, 2) classification system to divide utterances into major types, 3) history manager and knowledge-base. Users most often refined existing visualizations, or asked for new visualizations using an existing visualization as a template.

**Examples**

Examples questions and responses from the system to a city of Chicago crime data set

**Motivation**

InfoVis novices’ struggle with visualization construction. Even with the aid of visualization software, such users may face challenges when translating their questions into appropriate visual encodings, or interactively refining the representation to achieve a desired result.

**Conversational interface**

A “conversational interface” which maintains a dialog with the user through natural language and gestures, could allow users to engage in repeated cycles of visualization generation and modification, asking questions directly through speech.

**Architecture**

- **Data collection**
  - Chat box
  - Status bar
  - Camera feeds
  - Mirrored display

We simulated a conversational interface, by asking subjects to complete an exploratory data analysis problem with a "remote data analysis expert", who provided visualizations and engaged in a dialog through a chat box.

**Analysis**

- **Thought**
- **Response**
- **Data and task description**
- **Chat box**
- **Requests**
- **Requests**
- **Responses**

**Visual Data Exploration**

Conversational Interface for Visual Data Exploration

**Future work**

Future work with focus on:
- Resolving references to on-screen visualizations and objects through speech and gestures
- "Can I see this plot <points> but with data for the Loop?"
- Enriched visualization history manager, to provide context to new questions
- Responses to user questions about points of fact and user expressions of preference
- Expanded visualization modification operations