Development Team

Ryan Kirkpatrick (Leader) – NLP and GUI Design

Dang Nguyen – Data Retrieval & Layout

Dali Xiao – Hot word detection & Passive Listening

Min Jian Yang – NLP Interpretation
Hardware companies are allocating a lot of resources into the manufacturing process, especially hardware verification.

Engineers spend a lot of time looking over production data to uncover causes of insufficient yield.

Facilitate a faster time to market and reduce company labor costs.
IEA Querying System

- Interacts with the user through audible AI
- Retrieves and caches data for queries
- Understands the context of what data is available and how conversation is developing -> anyone can use it
- Displays essential data through charts and graphs
Block Diagram

Data and Autonomous System

Yield Data

Autonomous System

Analyzed Result Data

Querying System

Control System:
*Signal Specification

Interface and Display Signals

GUI:
*Main GUI for user interaction
*Display GUI for output

Displayed Screenshots

Output:
PowerPoint Presentation

Display Intent

Data Signals

Interpretation Engine:
* Audio Input/Output
* Analysis of input's Intent and Request
* Understanding of Data for Conversation Context

Display Engine:
* Data Connection
* Data State

Data
Progression Timeline

- **Fall Quarter:**
  - Initial Conceptual Demo:
    - User input ignored → scripted output
  - End of Quarter Demo:
    - Listened to user for key words → output generic plots

- **Winter Quarter:**
  - End of Quarter Demo:
    - Key words → Improved graphs with real data

- **Spring Quarter:**
  - End of Quarter Demo:
    - Key word and NN intents → Advanced graphs with real data
    - Useable by anyone with handling of nonrelevant queries
Area of Improvement - Interpretation

➢ Difficulties:
  • Incorrect Text Mapping of Audio
  • How to interpret user’s query into intents
What device are we looking at?
- Highly reliable medical microcontroller
- Analog parametric tests probed off wafers

How is it organize?
- Lots -> Wafers -> Tests -> Parametrics

How is it used?
- Wait for the demo...
Demo Workflow

IEA Workflow

Intro → Wafer Parameters → Histogram of Parameters → Lot Yield

End → unrecognized wafer

next

compliment, wafer of #

compliment, zoom in, zoom out

compliment

compliment, login, help

next, bye

next, bye

next, bye

next, bye

next, bye

next, bye

next, bye

next, bye

next, bye
Demo
What’s Next?

➢ Iterative Goals:
  – More graphing options
  – More state options

➢ Larger Goals:
  – Passive Listening
  – Handle irrelevant queries
  – Neural Network Intent Parser
Thank you!!!

Prof. Wang
Chuanhe (Jay) Shan
Yueling (Jenny) Zeng

Prof. Yoga
Carrie Segal
Brandon Pon
Thank you!!!

Questions?