



Mohini Banerjee



Shilika Gehlot



Jessica Meng

# iRecruit | Team B2

# Application Area

- **Problem Area:** Lack of opportunity to practice a simulated, real-time interview
- **iRecruit:** Interview assistant capable of providing software engineering job-seekers raw interviewing experience
  - Behavioral and technical interview portions
- **Areas:** Software and Signals

# Solution Approach Explanation

- **Behavioral:**
  - Users video record themselves answering behavioral questions
  - iRecruit provides real-time feedback on eye contact and screen alignment
- **Technical:**
  - Users audio record their interests/skill set
  - iRecruit uses speech-to-text model to generate matching technical question
- User-friendly way to help prepare for interviews
- Centralized platform for both behavioral and technical portions

# Solution Approach

Web app  
deployed via  
AWS EC2



Q: \_\_\_\_\_

Qs stored in fixed database

Previous video recordings stored in "Profile"

Technologies:

- Backend (facial feature detection):
  - Python: OpenCV, NumPy, dlib
- Frontend:
  - Python: Django (web framework)
  - HTML/CSS
  - JavaScript (alerts)

Save

Q: \_\_\_\_\_

Input: Audio of user's interests and/or strengths

Previous technical questions stored in "Profile"

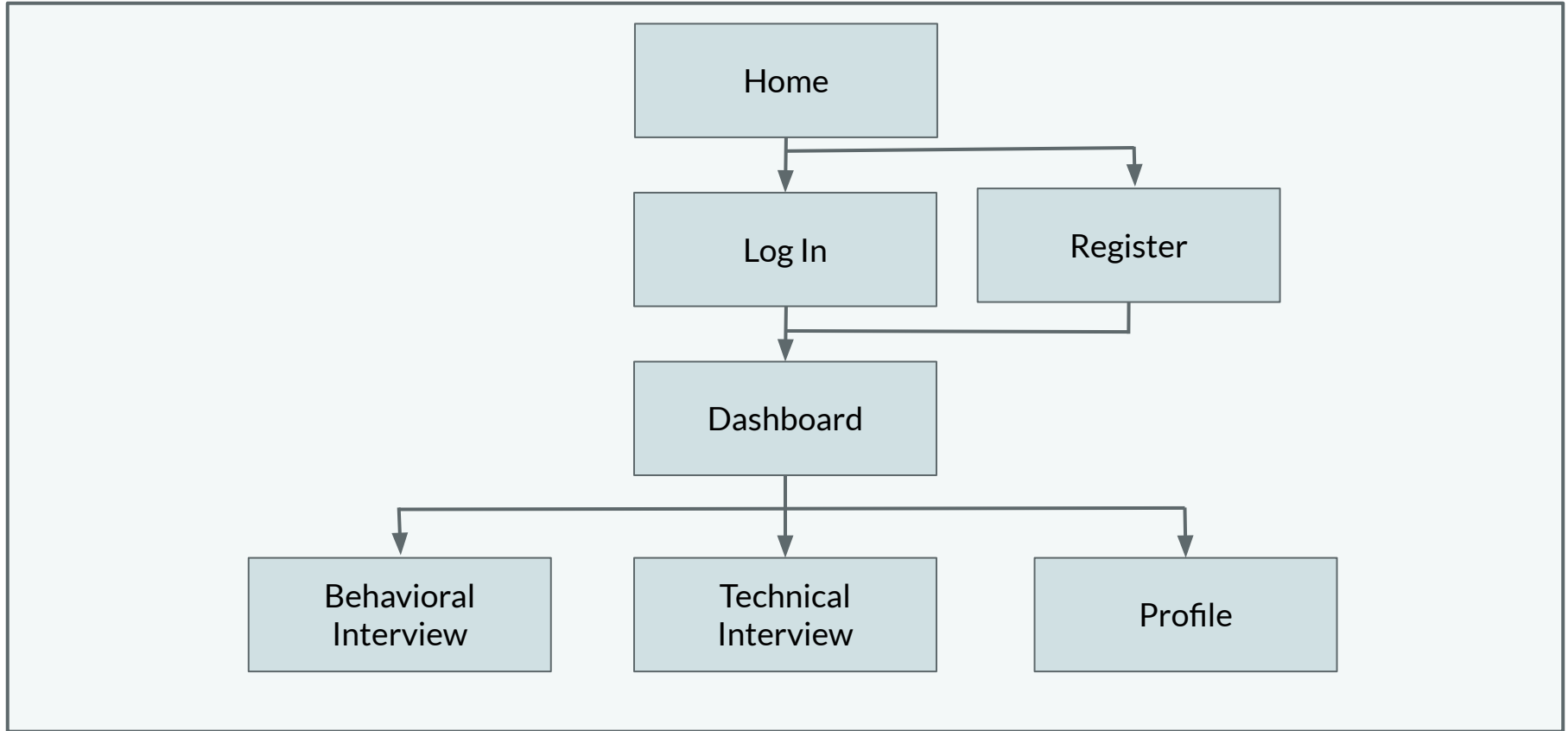
Post-Processing:

- Backend:
  - Python: SciPy, NumPy, pyplot
- Frontend:
  - Python: Django (web framework)
  - HTML/CSS
- Mathematical Tools:
  - Nyquist Theorem
  - Fourier Transform
  - Neural Network

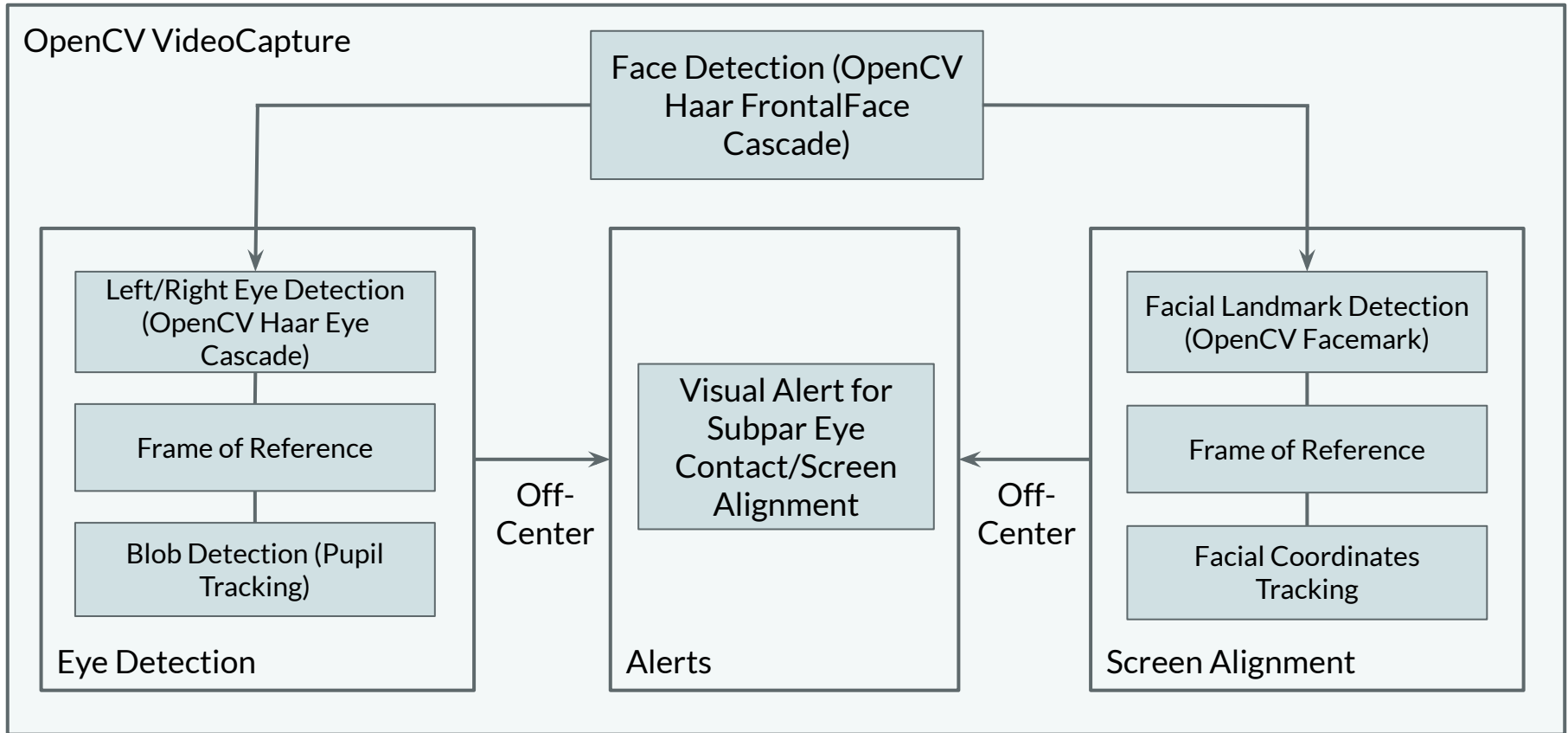
Type answer here:

Save

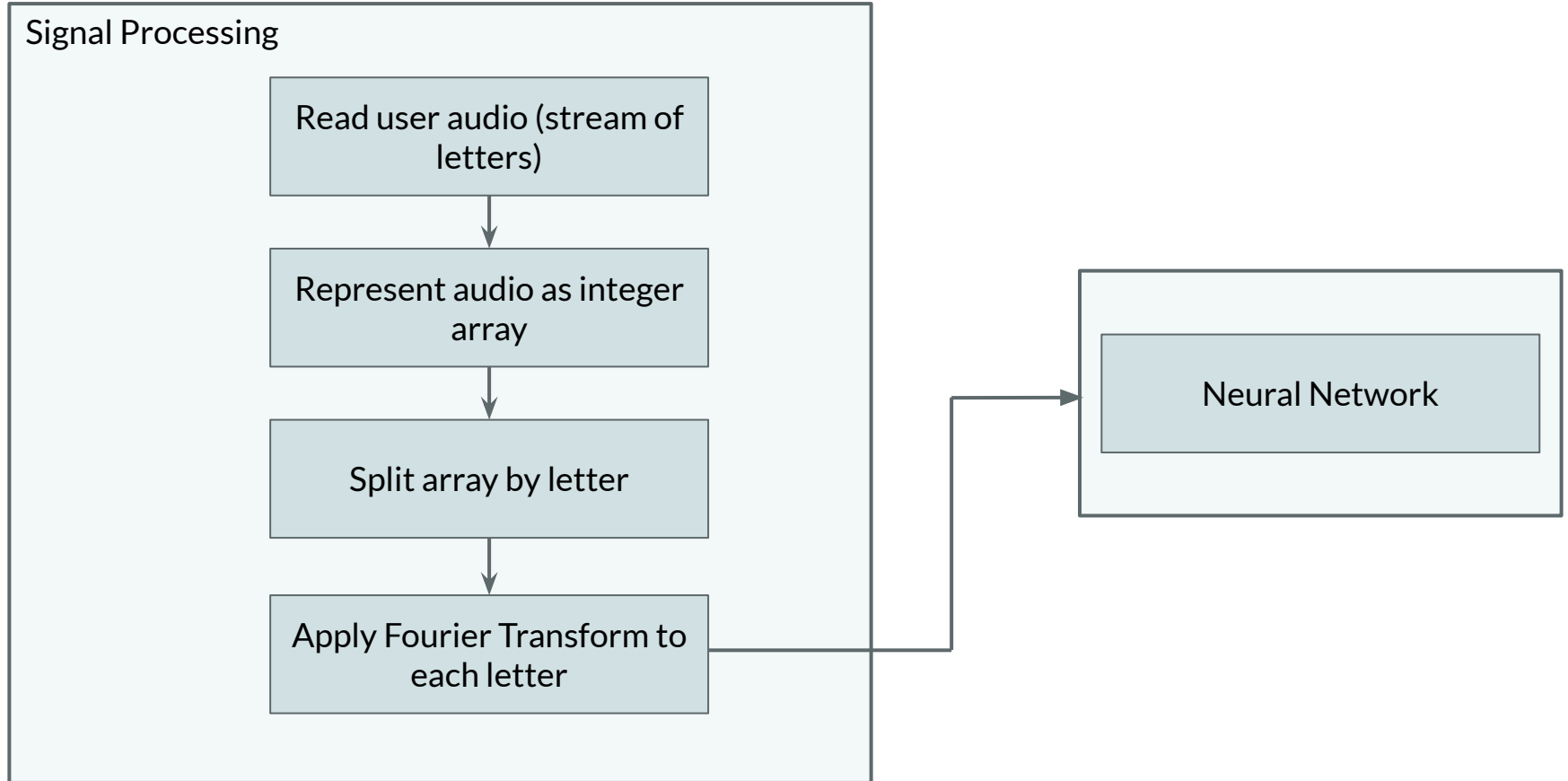
# Block Diagram - Web App



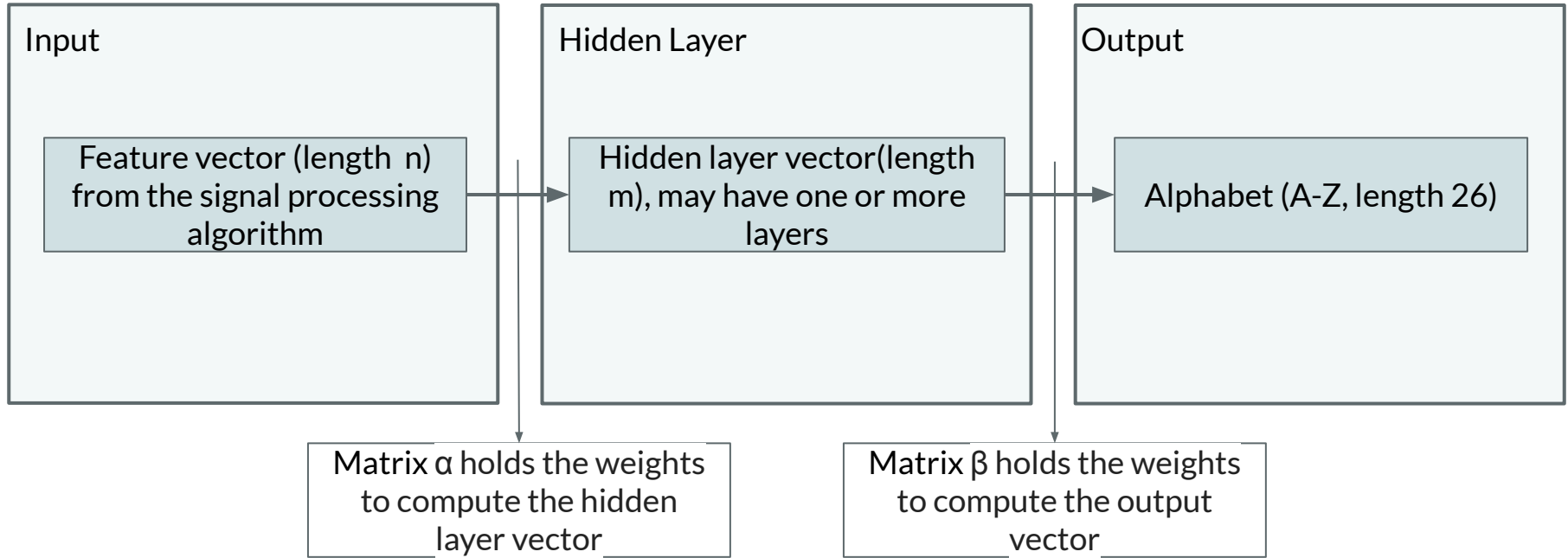
# Block Diagram - Facial Detection



# Block Diagram - Signal Processing



# Block Diagram - Machine Learning



Objective: Find the optimal parameter matrices to minimize Mean Squared Error



# Implementation Plan

- Components Designing/Developing
  - Web app pages
  - Facial Detection
  - Signal Processing
  - Machine Learning (Neural Network)
  - Will be utilizing and citing outside sources (online reference material, code, etc.)
- Components Buying:
  - Amazon Web Services (AWS) EC2 to deploy web app
    - ~\$10.00
    - Status: in progress

# Metrics and Validation

- Keep track of actual vs. expected values
  - Facial Detection: # times system alerts user of subpar eye contact and screen alignment based on predetermined set-up
    - Input: Facial feature coordinates
    - Output: Alert user of off-center coordinates within 5 seconds == passing test
  - Speech Processing/Machine Learning: # letters from skill set audio file that are correctly captured
    - Input: Audio file of letters
    - Output: Correct predicted letter == passing test
- Accuracy measured by # successful tests passed

# Risk Factors

- Facial Detection:
  - Inability to meet accuracy expectations
  - Factors that may affect performance:
    - Contrast between different facial features
    - Lighting
    - Background
- Speech Processing/Machine Learning:
  - Inability to meet accuracy expectations
  - Differences in pitch and loudness of each user
  - Similar sounding letters (i.e. M and N)

# Schedule (from Proposal Presentation)

