Goal

- Develop an accessible Augmented Reality Mobile Application that desensitizes phobia patients with animal phobias through exposure therapy.
- Track patient anxiety and comfort through each intensity level and provide analytics to observe therapy effectiveness.

Motivations and Objectives

- **Motivations**
  - Estimated 8.7% (~19.2 million) Americans are affected by a specific phobia.
  - Phobias can be crippling causing unpleasant symptoms such as heart palpitations, perspiration, dizziness, dry throat.

- **Objectives**
  - Design and Develop protocols that use augmented reality and gradually expose patients to stimulus.
  - Track session analytics to observe effectiveness of therapy.

Research Challenges

- Lack of real patients to study feasibility and usability for the effectiveness of the therapy.
- Gathering patient metrics from each session without the use of external equipment.
- Infant AR tracking can be susceptible to noise which causes improper screen to world mapping.

Acknowledgement

We would like to thank Dr. Deborah Silver for providing valuable insight, and the Electrical and Computer Engineering Department for the resources and support.

Methodology

- Protocols with several intensity levels were designed for each specific animal phobia that gradually expose the stimulus to the patient.
- The patient chooses an animal to work with and chooses an unlocked intensity level.
- The user performs tasks to complete the level and completes a post-session survey.
- If session metrics surpass a certain threshold, the patient can move on to the next level.
- Analytics and progress can be viewed on the analytics page.

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Future Direction

- Implement common phobias/disorders that VR/AR can combat.
- Develop external medical devices that measure temperature/perspiration/breathing.
- Perform usability and feasibility trials and continuously iterate on patient feedback.

References