**BACKGROUND & GOAL**

- **Goal**: to develop a 3D visualization tool that accurately & intuitively displays critical cerebral components in epilepsy patients pre/post surgery
- **Limitations of current technology**:
  - 2D images
  - Not patient-specific
  - Lack of coregistration
  - Non user-friendly

**PROJECT DESIGN**

**3D Printing**

- Designed as a communication tool for surgical planning
  - **Physically pinpoint** areas for surgery on the model
  - **Assist communication** between medical professionals
  - **Assist understanding & reassurance** for patients and families

**Virtual Reality**

- Designed as a diagnostic tool for surgical planning
  - **Accurately display** areas of epileptic activity
  - **Toggling/transparency** between anatomical areas of the brain
  - **Intuitive functions**: zoom, rotate, & slice
  - **Note-taking/marking**

**SPRING TIMELINE**

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<th>ID</th>
<th>Task Name</th>
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**CURRENT PROGRESS**

**3D Printing**

- **3D printed a 1:1 model** with PLA using patient MRI scans
- **Investigated new materials** that are flexible for manipulable models.
- **Smoothed and filtered** images for ease of printability

**Virtual Reality**

- **Combined MRI and CT scans** together for a comprehensive model
- **Separated anatomical components** of the brain
- **Integrated functions**: grab, rotate, transparency, toggling

**ACKNOWLEDGEMENT & CONTACT**

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**Daniel Shrey, PhD, M.D.** dshrey@choc.org

**Beth Lopour, PhD** blopour@uci.edu

**Joffre Olaya, M.D.**, Pediatric Neurosurgeon

**Andrew Dam - adam1@uci.edu**

**Dishant Donga - dongad@uci.edu**

**Leslie Fernando - leslief@uci.edu**

**Natalie Mai - mainh@uci.edu**

**Prachi Shah - prachias@uci.edu**