## NEW YORK INSTITUTE OF TECHNOLOGY

College of Osteopathic Medicine

## Neuro360 VR

Jerry Jose, Maddison Messmer, Chloe Bodden, Nicolas Frangella, Salonie Dave, Dr. Randy Stout

• <u>Purpose</u>: Medical students, after taking neuroanatomy, created anatomically accurate digital models (using Adobe Medium) of the human brain to enhance learning for future medical students through Virtual Reality (VR).

### • Benefits of VR:

- Students are able to customize and personalize their learning
- Self-paced and self directed, allowing for learning through trial and error
- Ability to scale and rearrange both macroscopic and microscopic structures all within the same model





Screenshots of the hippocampus, showcasing the student's ability to manipulate and rearrange each hippocampal gyri and scale down to the level of the trisynaptic circuit, which is otherwise impossible with traditional dissection or textbook learning.







# The Use of Virtual Reality in Medical Education Jerry Jose, Mohit Gogna, Edward Piscitelli, Randy F. Stout, PhD

Screenshots of the hypothalamus and pituitary, scaled down to the cellular level showing the relation of the hypophyseal portal system to the five major cell types of the anterior pituitary.

> Screenshot of the spinothalamic, DCML, and corticospinal tracts found within the spinal cord and brain stem.

Screenshots of the brain model, showcasing the ability to take apart and put back together each surface gyri and the internal structures within the brain, which would be virtually impossible to isolate during a dissection.

## **Teaching Cranial Strain Patterns Using Virtual Reality**

<u>Purpose:</u> To build an entirely virtual learning environment used to teach medical students cranial bone strain patterns

#### **Overview:**

- We built the first ever interactive OMM VR Module of the axes of rotation for the movements.
- The resulting interactive and personalized VR understanding based on standard instruction methods.





Created by Gonzalo Bravo from Noun Project









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for cranial bone instruction. We included animations of cranial bone movements that are exaggerated to aid student understanding as well as 3D illustrations instruction platform allows students to focus on the particular motion patterns that they have difficulty









Created by Gonzalo Bravo from Noun Project

## **Osteopathic Manipulative Medicine VR**

Edward Piscitelli, Erum Ahmed, Dr. Sheldon Yao, Dr. Randy Stout

- Feel, Move":
- Plumb Line

- Survey
- Energy or Counterstrain.



• <u>Purpose</u>: Pilot Study to assess the use of Virtual Reality in teaching OMM Concepts

• <u>Overview:</u> 40+ question assessment based on "Look,

 Body Landmarks & Symmetry • Red Reflex & Skin Drag Techniques Active Range of Motion Testing

• <u>Participants:</u> 45 1st year medical students at NYITCOM

• <u>Data Collection:</u> Assessment Score, Play Time, Redcap

<u>Conclusion:</u> 89.7% (40) participants found OMM VR a positive experience. Future iterations will be designed to incorporate treatment techniques like Muscle