Harris Nisar
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Education

Master of Science Candidate in Industrial Engineering   **December 2022 (Expected)**
University of Illinois at Urbana Champaign

Bachelor of Science in Bioengineering   **May 2017**
University of Illinois at Urbana Champaign

Work Experience

Simulation Engineer, Urbana Champaign, IL & Peoria, IL   **Sep 2017 – Present**
Healthcare Engineering Systems Center, University of Illinois at Urbana Champaign

- Leading multi-disciplinary teams to develop virtual reality projects for medical simulation and training.
- End-to-end project management including ideation, proposal writing, and production to deliver software.
- Managing $100,000+ in Jump Trading ARCHES funding for development.

Skills

Programming: Unity and C#, Python (Pytorch, OpenCV), JavaScript (node, React),
Machine Learning: Supervised Learning, Unsupervised Learning, Deep Learning, Computer vision, NLP, Signal processing
Deployment: AWS, Docker, Raspberry Pi

Projects

Webcam Capture for Pose Estimation, Healthcare Engineering Systems Center   **Dec 2021 – Present**

- Developed portal to record and upload images and videos recorded from webcam to the cloud.
- Trained neural network to detect key landmarks of the face using Pytorch.
- Used Docker for easy deployment to AWS to serve frontend and to serve inference code for machine learning models.

Caption Generation, UIUC   **Jan 2021 – May 2021**

- Implemented a neural network to generate captions using Pytorch (CNN's and RNN's).
- Trained on a dataset of 8000 images with 5 captions per image (40,000 captions).
- Achieved similar results to those found in the literature.

Predicting Urban Sound Tags in an Acoustic Sensor Network, UIUC   **Jan 2020 – May 2020**

- Used urban sound dataset to investigate the presence or absence of sound classes.
- Explored audio embeddings & data augmentation. Implemented deep learning models using Pytorch for classification.
- Obtained raw accuracy of ~75%.

Virtual Reality Projects, Healthcare Engineering Systems Center   **Aug 2019 – Present**

- Worked with healthcare providers to understand requirements and to plan delivery of software.
- Developed virtual reality software using Unity and C#
- Developed robust tools and pipelines to rapidly develop and iterate software across projects.

Self-Tracking Kiosk, Healthcare Engineering Systems Center   **May 2020 – Sept 2020**

- Developed a system to record body temperature using the infrared thermal camera and a Raspberry Pi.
- Developed a mobile application to connect any smartphone to the system via Bluetooth Low Energy.
- Developed a node server to store temperature information to monitor health over time.

UVBot, Healthcare Engineering Systems Center   **May 2020 – Sept 2020**

- Developed a low-cost robot that can be programmed to disinfect spaces using UV light.
- Designed and fabricated mechanical components and assembled circuitry for robot.

Rube-E, Jump Simulation and Education Center   **May 2018 – Aug 2019**

- Developed a mobile application using Unity to teach children in the hospital about human anatomy.
- Led a team of interns to develop the mobile application
- Developed a content management system hosted in the cloud to allow for new content.

Publications

Naveen Sankaran, Harris J Nisar **"Efficacy Study on Interactive Mixed Reality (IMR) Software with Sepsis Prevention Medical Education"** IEEE Virtual Reality, Osaka, Japan, March 25-27, 2019

Lydia Lee, Harris J Nisar **"Face and Content Validation of Food Safety Training in Virtual Reality (VR)"** IEEE SeGAH (UNDER FINAL REVIEW)