MINH TRAN

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EDUCATION

PhD in Bioengineering May 2020 – May 2024
University of Texas at Dallas GPA 3.97

Bachelor's Degree in Electrical Engineering August 2015 – May 2020
University of Wyoming GPA 3.96
Minor in Computer Science

TECHNICAL PROJECTS

Thyroid Cancer Identification with Deep Learning and Spectral Imaging (Python, C++, AWS)

- Developed software in C++ to control multispectral microscope and capture 100K images of thyroid
- Used OpenCV to identify and remove images that are whitespace or out-of-focus from the dataset
- Trained a vision transformer in PyTorch to detect thyroid cancer with 0.906 AUC
- Used Amazon SageMaker (AWS) and wandb to check training on GPUs
- Presented research results orally at the 2022 SPIE Medical Imaging Conference

Question-Answering Network for Biomedical Science (Python, SQL, AWS)

- Created an extractive question-answering network for biomedical science using PubMed articles
- Used SpaCy and Gensim NLP tools to write preprocessing functions and expand queries
- Finetuned BERT on two questions-and-answers datasets which consist of 150K questions total
- Deployed the system on the cloud using Flask REST API and hosted the system on AWS EC2 server

Posture Detection with Inertial Measurement Unit (MATLAB)

- Planned and conducted scientific studies on 17 volunteers wearing exoskeletons and inertial measurement units (IMU) sensors.
- Used MATLAB to analyze 20 hours of sensor data taken during various activities
- Used stepwise forward selection to select the most relevant features out of 120 total features
- Used Naïve Bayes classifier to classify five activities (squatting, slouching, sitting, standing, and walking) with 92.2% accuracy.
- Presented research result at the IEEE Conference on Rehabilitation Robotics

WORK EXPERIENCES

Graduate Researcher, University of Texas at Dallas May 2020 – Present

- Developed software for microscopes in C++ and reduced acquisition time by 300%
- Co-authored a U-Net in TensorFlow that increases resolution of spectral images 16 times
- Communicated with vendors to order $50,000 worth of optical equipment
- Wrote and co-wrote 6 publications. Presented research orally at 3 conferences
- Mentored an undergraduate student in a PyTorch deep learning project; won undergraduate poster award

Research Assistant, University of Wyoming, WY August 2018 – May 2020

- Designed games using Unity and C# with the aim to rehabilitate stroke victims
- Wrote two grant proposals that were accepted by the National Institutes of Health for $2,200 total
- Conceived and performed two scientific studies on human wearing exoskeletons

Research Intern, Northwestern University, IL May 2018 – August 2018

- Evaluated 30 CT scans in Python and produced figures for a publication
- Removed noise and artifacts from CT images using wavelet transform

TECHNICAL SKILLS

Programming languages: Python, C++, C#, Java, MATLAB, R, SQL
Data Science: TensorFlow, PyTorch, pandas, scikit-learn, NumPy, HuggingFace, wandb, SageMaker, Excel
Software Development: Git, GitHub, Docker, Visual Studio, AWS
Research: Study Design, Statistical Analysis, Mathematical Modeling, Presentation
Coursework: Machine Learning, Algorithms and Data Structures, C++ for Engineers, Digital Image Processing, Experimental Methods and Statistical Analysis