Roy Huang

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EDUCATION

University of Iowa   *Iowa City, IA*
MS in Electrical and Computer Engineering; GPA: 3.80/4.0   *Dec. 2024*
BS in Electrical and Computer Engineering; GPA: 3.51/4.0   *Dec. 2023*
- Concentration: Machine Learning
- Relevant Coursework: Deep Learning in Medical Imaging, Mathematics for Machine Learning, Applied Machine Learning, Medical Imaging Physics, Pattern Recognition, Modern Databases, Graph Algorithms and Combinatorial Optimization

WORK EXPERIENCE

Research Assistant – *UT Southwestern Ophthalmology*   *Jan. 2025 – Present*
- Developing deep learning applications in ophthalmic imaging under Professor Jui-Kai Wang   *Dallas, TX*
- Data preprocessing, designing neural networks, image modality change, segmentation, research presentation

Research Assistant – *UIOWA Ophthalmology*   *Sep. 2024 – Dec. 2024*
- Developed an automated workflow for processing stereoscopic images for a VR platform   *Iowa City, IA*
- Enhanced clinicians' and residents' ability to assess optic disc swelling

Teaching Assistant – *UIOWA College of Engineering*   *Jan. 2023 – May 2024*
- High Performance Computer Architecture, Communication Networks, Linear Systems I   *Iowa City, IA*

Network Engineer Intern – *Casey's General Store*   *May 2023 – Aug. 2023*
- Troubleshooted fiber malfunctions, calculated subnet sizes, and analyzed network data   *Ankeny, IA*
- Coordinated router/firewall store upgrade project for 35 new stores, communicated across different teams
- Gained insights into Agile development from shadowing software engineering team and supply chain IT team

PROJECTS

Lung CT Image Tumor Segmentation – *Deep Learning in Medical Imaging*   *2024 Fall*
- Achieved excellent results (0.8 Dice Score) in lung tumor segmentation with UNet architecture (PyTorch)
- Experimented various training techniques: data augmentation, automatic stoppage, learning rate scheduling
- Presented project in a classroom setting and created project reports

MRI Imaging Enhancement – *Applied Machine Learning*   *2024 Spring*
- Advanced MRI imaging technology by leveraging machine learning techniques (PyTorch)
- Implemented Model Based Deep Learning (arxiv.org/pdf/1712.02862) for supervised learning approach
- Implemented Diffusion Posterior Sampling (arxiv.org/abs/2209.14687) for unsupervised learning approach

Book Recommendation Web App – *Modern Database*   *2023 Fall*
- Built book recommendation web app (Flask) using Amazon Books dataset (212k+ books, 3M+ reviews)
- Recommends 5 books based on book title (MongoDB text score)
- Recommends 3 books based on similar users (Neo4j's graph capabilities)

LEADERSHIP & INVOLVEMENT

Fire Technician	*UIOWA Housing & Dining*	*2024*
Student Representative	*Student Engagement Lunch with President Barbara Wilson*	*2023*
Network Technician	*UIOWA ITS*	*2022 – 2023*
Piano Performer	*Music Minor*	*2021 – 2023*
Inclusion Agent	*UIOWA College of Engineering Student Success*	*2020 – 2022*
Construction Worker	*Habitat for Humanity Rice County, MN*	*2020*
Fundraiser	*UIOWA Children's Hospital*	*2019*