Huy Huynh

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Education

University of Washington, Seattle, WA Expected Graduation: June 2027
B.S. in Computer Science *GPA: 3.74*

Coursework: **through fall '25*

Data Structures & Algorithms	Advanced Machine Learning	Deep Learning
Computer Vision	Data Management	Linear Algebra

Experience

GRAIL: UW Graphics and Imaging Laboratory | *Undergraduate Research Assistant* June. 2025 - Present

- Supported UltraZoom, a computational imaging pipeline developed under Prof. Steven Seitz and PhD student Jingwei Ma, which uses a diffusion-based generative model to synthesize gigapixel-resolution images by propagating high-frequency texture from a close-up patch across a lower-magnification full-shot image
- Conducted microscope-based data collection across varying magnifications to evaluate the scalability of UltraZoom's reconstruction pipeline
- Ran model training and inference on high-magnification data to assess performance and visual fidelity
- Refined model architecture to accommodate increased resolution demands and reduce artifacts during upscaling

Husky Coding Project | *Project Manager* Oct. 2024 - Present

- Directed a team of 7 developers in the creation of DressMe, a mobile app that leverages AI; personally wrote 500+ lines of code to build the app's recommendation algorithm
- Drove alignment across the team by creating a detailed project roadmap with bi-weekly milestones, resulting in on-time delivery of the app MVP
- Pioneered the development of core mobile app features, including an image recognition system that cataloged wardrobe items with 95% accuracy, enhancing the cataloging experience

Projects

VisTumor: Cancer Explainability | *PyTorch, Torchvision, NumPy, Matplotlib, OpenCV, scikit-learn* June 2025

- Developed a deep learning pipeline for cancer detection on histopathology image patches using ResNet, DenseNet, and EfficientNet architectures trained on the CAMELYON16 dataset
- Integrated Grad-CAM++ and saliency mapping to visualize model attention and improve model interpretability
- Fine-tuned architectures using transfer learning, freezing base layers, and learning on classification layers to improve generalization on limited medical data, achieving 86% accuracy after 5 epochs
- Conducted qualitative analysis on the viability of model explainability techniques in high-risk applications and outlined directions for future clinical applications

CIFAR-10 Classification Model | *PyTorch, Numpy, Matplotlib, Google Colab* April 2025

- Designed a custom CNN based on a modified VGG architecture to classify images from the CIFAR-10 dataset
- Incorporated BatchNorm and Dropout layers to prevent overfitting and redundant activations
- Reduced VGG network depth to 3 blocks to improve training speeds without major performance drawbacks
- Successfully demonstrated architecture simplification by achieving 85% test accuracy on 10 epochs

Chess Engine | *Java* August 2024

- Developed an advanced chess engine in Java utilizing a Mini-Max algorithm.
- Implemented Alpha-Beta pruning, reducing the search space by up to 75%, significantly improving move evaluation efficiency.
- Achieved a performance improvement of 30% by leveraging immutable objects, minimizing state management overhead, and improving thread safety.
- Evaluates up to 10,000 board positions per second, enabling rapid and accurate move calculations.

Skills

Languages: Java, Python, C, SQL, JavaScript, HTML/CSS
Frameworks: Google Colab, Jupyter Notebook, React Native, Git, GitHub
Libraries/APIs: PyTorch, NumPy, Matplotlib, OpenCV, scikit-learn, PIL, Guava, SQLite3, D3, Vega-Lite