DZUNG DINH

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EDUCATION

University of North Carolina - Chapel Hill Chapel Hill, NC
Doctor of Philosophy in Computer Science Incoming Fall 2024

Dickinson College Carlisle, PA
Bachelor of Science May 2024
Major in Computer Science & Minor in Mathematics GPA: 3.97
Honor thesis: **Application of Neural Radiance Field single-object 3D reconstruction algorithms for volume estimation.**

PUBLICATIONS

- Fraser Mince*, **Dzung Dinh***, Jonas Kgomo, Neil Thompson, Sara Hooker. 2023. ***The Grand Illusion: The Myth of Software Portability and Implications for ML Progress***. In Proceedings of the Neural Information Processing Systems (NeurIPS) Conference. (*: Co-first author)

RESEARCH EXPERIENCE

Segmentation and Reconstruction of Knee MRI Scans: From Medical Imaging Data to 3D Printed

Research Assistant | Advisors: Dr. Minh Do (UIUC), Dr. Hieu Pham (VinUniversity) | May 2023 – October 2023

- Developing a deep learning model that improved the accuracy of MRI knee structure segmentation, addressing challenges in manual segmentation and leading to more robust patient treatment plans.
- Implementing U-Net, conducted extensive error analysis, and proposed future improvements for model performance through the integration of spatial relationships and proposed loss function.

Portability of Software Across Hardware

Research Assistant | Advisors: Dr. Sara Hooker (C4AI), Dr. Neil Thompson (MIT) | October 2022 – October 2023

- Investigated the portability of popular ML libraries across types of hardware type.
- Collected and modified tests for 210+ functions in TensorFlow, PyTorch, and JAX and assessed the functions' portability across different GPUs and TPUs.
- Wrote up the paper and will be presenting the publication as a poster at NeurIPS 2023.

Supervised Machine Learning Based Heuristics for the Quadratic Multidimensional Knapsack

Undergraduate Researcher | Advisor: Dr. Dick Forrester (Dickinson College) | January 2023 – May 2023
Project: Supervised Machine Learning Based Heuristics for the Quadratic Multidimensional Knapsack Problem

- Implemented DBSCAN and Linear Regression to solve the Quadratic Multidimensional Knapsack.
- Outperformed the heuristic method for a GAP value of 2%.

Convolutional Neural Networks for Static Backgrounds

Undergraduate Researcher | Advisor: Dr. John MacCormick (Dickinson College) | August 2022 – December 2022

- Exploited static backgrounds when analyzing images using Convolutional Neural Networks (CNNs).
- Visualized CNN filters to demystify image processing in static image recognition.
- Analyzed the impact of removing translation invariance by using Locally Connected layers - a variety of Convolutional layers where weights are unshared - and obtained 93.7% F1 score on our toy dataset.

TEACHING EXPERIENCE

Mathematics & Computer Science Department, Dickinson College

Teaching Assistant | September 2021 – May 2024

- Working with professors to assist, mentor, and tutor students in Introduction to Computing (COMP 130), Single Variable Calculus (MATH 170), and Multivariable Calculus (MATH 171).
- Holding weekly review sessions and guiding students with homework and quizzes.

SKILLS

- **Languages**: Python, Java, R, SQL, C++
- **Technologies/Frameworks**: PyTorch, TensorFlow, Keras, JAX, Scikit-Learn, Numpy, Pandas, Scrapy, Matplotlib, Git