

Alan (Haoxin) Li

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Education

University of Washington, Paul G. Allen School of CSE **Seattle, WA**
Computer Engineering B.S./M.S. Combined | 3.87 GPA (Cum Laude) Autumn 2020–Spring 2024 (Expected)

Research Experiences

Research Assistant | *Noah's ARK Lab (Seattle, WA)* Winter 2022–Present
Supervised by Prof. Noah A. Smith, Prof. Jungo Kasai, and Mr. Phillip Keung.

- **Model architecture and model efficiency.**
 - ◇ Proposed efficient transformer architectures by alleviating intrinsic sequence representation redundancy.
 - ◇ Exploring efficient approach for knowledge update with Direct Preference Optimization (DPO).
- **Information retrieval and generative retrieval.**
 - ◇ Exploring retrieval-aware pretrained large language models for generative retrieval.

Publications

- ***NarrowBERT: Accelerating Masked Language Model Pretraining and Inference*** ([Link](#), [Code](#))
Haoxin Li, Phillip Keung, Daniel Cheng, Jungo Kasai, Noah A. Smith.
Keywords: masked language model (MLM), efficiency, sparsity.
To appear in ACL 2023 (main conference).
- ***ACID: Abstractive, Content-based IDs for Document Retrieval with Language Models*** ([Link](#))
Haoxin Li, Phillip Keung, Daniel Cheng, Jungo Kasai, Noah A. Smith.
Keywords: generative retrieval, document identifiers, large language models.
Preprint.
- ***Exploring Sequence Length Redundancies in Generative Models***
Daniel Cheng, **Haoxin Li**, Phillip Keung, Jungo Kasai, Noah A. Smith.
Keywords: encoder-decoder model, efficiency, sequence redundancy.
In Submission for ARR December 2024.

Work Experiences

Machine Learning Engineer Intern | *DGene Digital Technology (Shanghai) Inc.* Winter 2021–Summer 2021

- Developed deep learning **UNet** based **class-independent image matting and semantic segmentation** algorithms on 4K images that features iterative refinements with user inputs. Coded with **PyTorch**. ([Link](#))
- Developed backend image processing pipeline for Web application with **Python and Flask**.
- Developed **multi-camera calibration** Python libraries for 3D reconstruction with **C++ (Pybind11)** backend.

Teaching Experiences

Teaching Assistant | *UW CSE 333 Systems Programming* Autumn 2023–Present
Supervised by Prof. Chris Thachuk.

- Leading sections, grading, and coordinating group projects.

Project Coordinator & Head TA | *UPenn GRASP Lab (UPenn AI Summer Camp)* Summer 2020, 2021
Supervised by Prof. Jianbo Shi.

- Led lectures, coordinated overall course contents, and connected the team of students and faculties.