

Edward Edberg Halim
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RESEARCH INTERESTS

Computer Systems, Machine Learning, and Quantum Computing

EDUCATION

University of Wisconsin - Madison, Madison, Wisconsin, USA Jan. 2024 - Present
Ph.D. in Computer Science

Surya University, Tangerang, Indonesia Aug. 2014 - Nov. 2018
B.Eng. in Physics - Energy Engineering (Cum Laude) GPA: 3.57/4.0
Advisor: Niki Prastomo, Eni Sugiarti, Robi Sobirin
Thesis: Oxidation Resistance of Aluminum Silicide Coating on Inconel 625 Substrate.

PUBLICATIONS

- [1] **"LinnOS: Predictability on Unpredictable Flash Storage with a Light Neural Network"**. Mingzhe Hao, Levent Toksoz, Nanqinqin Li, **Edward Edberg Halim**, Henry Hoffmann and Haryadi S. Gunawi. *In the 14th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, 2020.
- [2] **"Detecting Frames in News Headlines and Lead Images in U.S. Gun Violence Coverage"**. Isidora Tourni, Lei Guo, Taufiq Daryanto, Fabian Zhafransyah, **Edward Edberg Halim**, Mona Jalal, Boqi Chen, Sha Lai, Hengchang Hu, Margrit Betke, Prakash Ishwar and Derry Tanti Wijaya. *In the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2021.
- [3] **"OpenFraming: Open-sourced Tool for Computational Framing Analysis of Multilingual Data"**. Vibhu Bhatia, Vidya Prasad Akavoor, Sejin Paik, Lei Guo, Mona Jalal, Alyssa Smith, David Assefa Tofu, **Edward Edberg Halim**, Yimeng Sun, Margrit Betke, Prakash Ishwar and Derry Tanti Wijaya. *In the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2021.

RESEARCH EXPERIENCE

University of Wisconsin - Madison, WI, USA June 2024 - September 2024
Research Assistant (*Neutral Atom Quantum Computing Readout*)
Advisor: Swamit Tannu

- Pruned the baseline model by **66x** and developed a simulation to enhance readout performance by **100x** (Python)

University of Wisconsin - Madison, WI, USA

April. 2023 - November 2023

Remote Researcher (Resource Disaggregation)

Advisor: Ming Liu

- Studied Center for High Throughput Cluster and computational biology workload PASTIS (*C and Bash*)

Virginia Tech, VA, USA

Aug. 2022 - December 2022

Remote Researcher (Memory Disaggregation)

Advisor: Huaicheng Li

- Processed and visualized Google workload traces. Potentially could improve the system from the insight. (*C, Python, Bash*)

Carnegie Mellon University, PA, USA

Jun. 2022 - Aug. 2022

Remote Researcher (Memory Disaggregation)

Advisor: Huaicheng Li

- Analyzed Google memory trace files in order to optimize the system. (*C, Python, Bash*)

Boston University, MA, USA

Jul. 2019 - Dec. 2020

Remote Researcher (Multimodal - NLP and Computer Vision)

Advisor: Derry T. Wijaya

- Built a user-friendly and interactive web-based system that allows researchers to conduct computational framing analysis without having to write code. (*EMNLP 2021*)
- Identified the news frame of a given news article based on its lead image, as well as some textual background/world knowledge of the image. **The model achieved 87% accuracy on articles with relevant images.** (*EMNLP 2021*)

University of Chicago, IL, USA

Oct. 2018 - Nov. 2019

Remote Researcher (Machine Learning for Systems)

Advisor: Haryadi S. Gunawi

- Explored the best combination of features to improve the accuracy of neural network model and studied the performance of neural network models from heavy to light on Microsoft Azure traces.
- **Reduced the average I/O latencies by 9.6-79.6% with 87-97% inference accuracy and 4-6 μ s inference overhead for each I/O.** This work (LinnOS) became the state-of-the-art method and was accepted in OSDI 2020.

Indonesian Institute of Sciences, Banten, Indonesia

Jan. 2018 - Jun. 2018

Research Assistant (Metallurgy)

Advisor: Niki Prastomo, Eni Sugiarti

- Synthesized a protective layer on Inconel 625 substrate with pack cementation method.
- Tested the material in 1000°C furnace for 100 hours.
- Evaluated the coatings morphology with Field emission scanning electron microscope (FESEM) and X-ray diffraction (XRD).

TEACHING EXPERIENCE

University of Wisconsin - Madison, WI, USA

Sept. 2024 - Present

Teaching Assistant (CS 320 - Data Science II)

Principal Instructor: Gurmail Singh

- Taught the Data Science labs. Held the office hours (Python and Bash)

University of Wisconsin - Madison, WI, USA

Jan. 2024 - May. 2024

Teaching Assistant (CS 220 - Data Science I)

Principal Instructor: Michael Doescher and Louis Oliphant

- Taught the Data Science labs. Created projects and exams. (Python and Bash)

WORKING EXPERIENCE

Astra Insurance, Jakarta, Indonesia

Nov. 2019 - Aug. 2021

Data Scientist

- Detected fraud cases in hospitals by using statistics and machine learning. (*Python*)

UNIVERSITY SERVICES

Student Council - Sports Division

2017 - 2018

HONORS & AWARDS

CS Summer RAship

2024

Dean's List

2015 - 2016

GRANTS

Operating Systems Design and Implementation (OSDI) Diversity Grant

2020

TECHNICAL SKILLS

Programming Languages:

C/C++, Python, Bash

Quantum Computing:

Qiskit, Cirq, PennyLane

Data Science:

PyTorch, Tensorflow, Sci-kit Learn, SQL, Matplotlib

Robotics:

ROS 2, RaspberryPi

Web Development:

HTML, CSS, Tailwind, JavaScript, GitHub, Node, Express, APIs, MongoDB, React