Jackson Kunde

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Machine Learning Engineer

EDUCATION

Bachelor of Science in Mathematics and Computer Science
University of Wisconsin-Madison • *Madison, Wisconsin* • GPA: *3.85/4.0*

High School Diploma
Menlo School • *Atherton, California* • GPA: *4.0/4.5* • Top #60 STEM High School in USA

AWARDS & SCHOLARSHIPS

Hilldale Undergraduate Research Fellowship • *Awarded to top 100 applicants out of thousands • 2024*

Congressional Exhibition on Advanced AI, *Finalist* • Selected to present on AI Risk at the U.S. Capitol.

Dean's List • *University of Wisconsin, Madison • 2021, 2022, 2023, 2024*

WORK EXPERIENCE

Ohalo Genetics • San Francisco, California • *06/2024 - Present*
Ohalo Genetics, founded by Dave Friedberg, is a biotechnology company that utilizes gene-editing technologies to develop improved crop varieties, aiming to enhance agricultural productivity and sustainability.
Machine Learning & AI Intern

- **Led the development of reinforcement learning models** for various robotic tasks, including cell microscopy and cell transfer, leveraging **large-scale, distributed machine learning systems** and **deep reinforcement learning algorithms**.
- **Designed and implemented scalable APIs** to serve data for machine learning models, integrating with **cloud computing platforms, cloud storage, and big data systems** to enable efficient data processing and retrieval.
- **Developed and deployed computer vision models** for tasks such as image segmentation, object classification, and object detection, ensuring robust and scalable solutions.

University of Wisconsin-Madison • Madison, Wisconsin • *09/2023 - Present*

Machine Learning Researcher, Lee Lab

- Researched **reasoning in language models**, focusing on **search-and-learn algorithms**, **algorithmic task-solving**, and **novel architectures. (**Publication here.**)**
- Designed a principled algorithm to boost **LLM throughput and inference speed (**publication here).
- Investigated **covert collaboration in multi-agent LLM systems**, earning the prestigious **Hilldale Fellowship.**
- Engaged in discussions on cutting-edge topics like **multi-modal LLMs** and **RLHF** while staying updated on state-of-the-art research.
- Advanced skills in **Python** and **PyTorch** for **training, fine-tuning, and inference.**

Backblaze, Cloud Storage • San Mateo, California • *06/2022 - 09/2022*

Software Engineering Intern

- Software engineer on **Backblaze's commercial cloud storage team.**
- **Developed and deployed** a command line tool, **still in use today,** to **query our distributed database** (Apache Cassandra) efficiently.
- Conducted **research on new technologies to improve the performance** of the command line tool.

VOLUNTEERING & LEADERSHIP

Wisconsin AI Safety Initiative • *09/2023 - Present*

Deputy Director, AI Alignment Scholar

• Deepening understanding of AI safety concepts and techniques through the rigorous study of academic papers and relevant media sources, staying informed about the latest advancements in the field.

• Working with **university administration to advance AI safety** research and interdisciplinary collaboration by **organizing speaker events, organizing faculty panels, and advising faculty hiring** for the computer science department.

Undergraduate Mock Trial Team • *09/2021 - Present*

Top-16 Attorney in the Nation, Financial Chair

• Led the Undergraduate Mock Trial Team **from 241st place in the nation to an outstanding 11th** place in the nation during my first year on the team, showcasing strong dedication, strategic thinking, and effective leadership skills.

• Recognized as one of the top 16 competitors in the country out of a competitive pool of 7,000 participants.

• Developed exceptional presentation, communication, and collaboration skills.

PUBLICATIONS

VersaPRM: Multi-Domain Process Reward Model via Synthetic Reasoning Data • *02/2025*

• ***Arxiv '25*** • Used synthetic data to improve PRMs and **scale test-time compute on new domains.**

Multi-Bin Batching for Increasing LLM Inference Throughput • *11/2024* • ***Arxiv '24***

Outlines a new approach based on queuing theory to **increase throughput of LLM systems.**

Computers are learning to do math, but can they learn to think along the way? • *03/2023* • ***Journal of Undergraduate Science & Technology***

Opinion article which details computer-assisted proofs from brute-force algorithms with early computers, to DeepMind's AlphaTensor, all the way the current state-of-the-art with language models.

PROJECTS

Demonstrated Risks of AI Agents on Emergency Services and Congressional Offices • *2025*

Led a team that demonstrated how AI models from OpenAI and ElevenLabs could be exploited by bad actors to automate coordinated phone calls, either to falsely report emergencies or to advocate for specific policies to congressional offices. My team was selected to present this demo to congressional staffers at the U.S. Capitol.

jTransformer • *2024*

Developed my own implementation of the transformer architecture as a tool for research and education, including scripts for efficient training and inference. The documentation and code is available **here**.

jRLHF • *2024*

Designed and implemented a custom library for Reinforcement Learning through Human Feedback (RLHF), enabling users to train reward models and optimize language models using policy gradient algorithms. The documentation and code is available **here**.

More projects available on my website and github.

COURSEWORK

Available on my website **here**.

SKILLS

Ansible Playbook, Apache Cassandra, Apache Spark, AWS, C Programming Language, Google Cloud, Docker, Kafka, Kubernetes, Collaboration, CQL, Data Science, Deep Learning, Git, Java, Leadership, Legal Analysis, Machine Learning, Python, PyTorch, Science Communication, Strategic Thinking, Transformers, Web Development, HuggingFace, Distributed Machine Learning, OpenAI Gym, MuJoCo.