Soren Dunn

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EDUCATION

The University of Chicago — Chicago, IL
Bachelor of Science in Data Science (Honors), Bachelor of Arts in Statistics, Bachelor of Arts in Chemistry — June 2023
GPA 3.83/4.00

The University of Illinois at Urbana Champaign — Urbana, IL
Master of Statistics — Expected, May 2025
GPA 4.00/4.00

Honors: National Honors in the National Chemistry Olympiad (2019), Enrico Fermi Scholar Physical Science Collegiate Division Honors 3rd Year (2022), National Merit Scholar (2019-2023)
Relevant Coursework: Software Quality Assurance with Generative AI, Computational Cancer Genomics, ML Algorithms for LLMs, Causality with Machine Learning, Nonparametric Inference

PUBLICATIONS

Agentless: Demystifying LLM-based Software Engineering Agents – Chunqiu Steven Xia*, Yinlin Deng*, Soren Dunn, Lingming Zhang. July, 2024 | *Under Review*

MedCalc-Bench: Evaluating Large Language Models for Medical Calculations – Nikhil Khandekar*, Qiao Jin*, Guangzhi Xiong*, Soren Dunn, Serina S Applebaum, Zain Anwar, Maame Sarfo-Gyamfi, Conrad W Safranek, Abid Anwar, Andrew Jiaxing Zhang, Aidan Gilson, Maxwell B Singer, Amisha D Dave, R. Andrew Taylor, Aidong Zhang, Qingyu Chen, Zhiyong LuJune, 2024 | *NeurIPS 2024 Datasets and Benchmark Track Oral*

Rational Construction of an Artificial Binuclear Copper Monooxygenase in a Metal-Organic Framework - Journal of the American Chemical Society – Xuanyu Feng, Yang Song, Justin Chen, Ziwan Xu, Soren Dunn, Wenbin Lin. January, 2021 | *Journal of the American Chemical Society*

EXPERIENCE

University of Illinois Department of Computer Science, *Research Scientist*, Chicago, IL, May 2024 – Present

- Worked with Dr. Lingming Zhang to develop the Agentless scaffold, which achieved the top-open-source performance for using LLMs to solve Github issues
- Developed repository parsing, localization analysis, and regression testing harness for Agentless which was used by OpenAI as a key metric to evaluate gpt-4o and o1's model autonomy
- Pioneered and implemented production tests for Agentless-1.5 which improved performance from 27.33% with the original scaffold up to a new high of 32.00% on SWE-bench-lite with the original model (gpt-4o) and 40.67% with Claude-3.5-Sonnet

Lapis Labs, *Research Scientist,* Urbana, IL, October 2023 – Present

- Performed full parameter fine-tuning of Mistral and Llama using Megatron-LLM on the MedCalc-Bench training set to serve as fine-tuning baselines for the MedCalc benchmark released with collaborators at the NIH
- Improved Mistral-7B's 0-shot accuracy from 1.53% to 49.19%, outperforming gpt-4 0-shot chain of thought performance

University of Illinois Department of Statistics, *Teaching Assistant*, Urbana, IL, Aug 2023 – Present

- Held office hours and discussion sections for STAT 410 and STAT 400 with an average of 20-30 students
- Received the Graduate Student Teaching Award for exemplary performance as a graudate teaching assistant in STAT 400
- Taught two sections of STAT 400, each with over one hundred and fifty students, for one and a half weeks for Dr. Albert Yu

University of Chicago Existential Risk Laboratory, *Research Fellow*, Chicago, IL, June 2022 – September 2022

- Worked with Dr. Victor Veitch on evaluation procedures based on OpenAI's WebGPT
- Tested various human evaluation procedures for misleading behavior in large language models
- Shared results with current researchers at OpenAI

University of Chicago Department of Chemistry, *Research Assistant*, Chicago, IL, June 2020 – June 2021

- Working with Wenbin Lin independently set up and ran density functional calculations for elucidation of oxygenation pathways using Gaussview and successfully identified pathways for copper and iron oxygenation