SAMUEL STEVENS

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RESEARCH INTERESTS

I am broadly interested in foundation-scale models in natural language processing and computer vision. My work is often cross-disciplinary; I combine alternative fields such as cryptography or evolutionary biology with these large, pre-trained models.

EDUCATION

Ohio State University   August 2021 - Present
Ph.D. in Computer Science & Engineering   *Columbus, OH*
Advisor: Professor Yu Su

Ohio State University (3.93 GPA)   August 2017 - May 2021
Honors B.S. in Computer Science & Engineering, *Summa Cum Laude*   *Columbus, OH*
Honors Research Distinction in Computer Science & Engineering
German Minor

SELECTED PUBLICATIONS & PREPRINTS

Memorization for Good: Encryption with Autoregressive Language Models
Samuel Stevens & Yu Su
arXiv Preprint, 2023

An Investigation of Language Model Interpretability via Sentence Editing
Samuel Stevens & Yu Su
In *EMNLP 2021 BlackboxNLP Workshop: Analyzing and Interpreting Neural Networks for NLP*

OTHER PUBLICATIONS & PREPRINTS

Mind2Web: Towards a Generalist Agent for the Web
Xiang Deng, Yu Gu, Boyuan Zheng, Shijie Chen, **Samuel Stevens**, Boshi Wang, Huan Sun & Yu Su
arXiv Preprint, 2023

SalsaBot: Towards a Robust and Generalizable Embodied Agent
Chan Hee Song, Jiaman Wu, Ju-Seung Byeon, Zexin Xu, Vardaan Pahuja, Goonmeet Bajaj, **Samuel Stevens**, Ziru Chen & Yu Su
In *4th Embodied AI Workshop at CVPR 2023*

Roll Up Your Sleeves: Working with a Collaborative and Engaging Task-Oriented Dialogue System
Lingbo Mo, Shijie Chen*, Ziru Chen*, Xiang Deng[†], Ashley Lewis[†], Sunit Singh[†], **Samuel Stevens**[†], Chang-You Tai[†], Zhen Wang[†], Xiang Yue[†], Tianshu Zhang[†], Yu Su, & Huan Sun
arXiv Preprint, 2023

Bootstrapping a User-Centered Task-Oriented Dialogue System
Shijie Chen*, Ziru Chen*, Xiang Deng[†], Ashley Lewis[†], Lingbo Mo[†], **Samuel Stevens**[†], Zhen Wang[†], Xiang Yue[†], Tianshu Zhang[†], Yu Su & Huan Sun
In *1st Proceedings of Alexa Prize TaskBot, 2022*

arXivEdits: Understanding the Human Revision Process in Scientific Writing
Chao Jiang, Wei Xu & **Samuel Stevens**
In *EMNLP 2022*

RESEARCH EXPERIENCE

Meta
May 2023 - August 2023
Research Scientist Intern, supervised by Kristin Lauter & Francois Charton
Seattle, WA

· Implemented and validated simpler architecture for the ongoing SALSA project.
· Continued part-time from August 2023 to December 2023.

Self-Attention Interpretability in Sequence Classification
October 2019 - April 2021
Undegraduate Honors Research Thesis
Columbus, OH

· Fine-tuned pre-trained language models on existing sequence classification task.
· Analyzed trends in the attention maps of BERT-based models to quantify differences in interpretability.
· Identified literature gap (no large-scale quantitative measurement of BERT's interpretability on sequence level classification) and designed experiments leading to a baseline result.

ENGINEERING EXPERIENCE

SpaceX (Starlink)
May 2021 - August 2021
Hardware Test Associate Engineer
Seattle, WA

· Refactored legacy code leading to $66K expected annual savings and 25% increase in first-pass yield.
· Developed data visualization for micropositioner actuator repeatability during testing.
· Developed thermal camera testing prototype, reducing test time from over 30 minutes to 30 seconds.

Microsoft
May 2020 - August 2020
Software Engineering Intern
Seattle, WA (Remote)

· Developed new Power BI feature to improve customers' ability to diagnose data-refresh problems.
· Ramped up quickly in a 100 million-line C++ codebase to begin delivering value immediately.

TicketBay
January 2018 - August 2020
Lead Developer
Columbus, OH

· Collaborated with OSU students to develop a mobile app for students to buy and sell football tickets.
· Facilitated the transfer of $165K worth of tickets between more than 7K customers.
· Led system architecture decisions in order to balance ease of development and system performance.

GE Aviation
May 2018 - August 2018
Digital Technology Intern
Cincinnati, OH

· Built an end-to-end testing solution to automate QA testing of customer-facing web application.
· Integrated test solution with existing CI/CD pipeline, leading to improved product quality with no additional developer work.

The Ohio State University
May 2018 - November 2019
Lead Developer
Columbus, OH

· Developed a webapp to distribute rich media content to support a professor's research.
· Managed 2 student developers in multiple time zones with agile methodology.

GE Aviation
May 2017 - August 2017
INTERalliance Intern
Cincinnati, OH

· In-sourced customer-facing search, targeting $300K in savings and 40K customers.
· Led MongoDB integration, giving customers access to previously unsearchable documents.

AWARDS

1st Alexa Priza Taskbot Challenge: 3rd Place · 2021-2022
"The challenge is focused on developing agents that assist customers in completing tasks requiring multiple steps and decisions. It's the first conversational AI challenge to incorporate multimodal (voice and vision) customer experiences."

· Developed internal dashboard to support bug-fixes in near-real time.
· Designed and implemented automated test suite using fuzzy matching to support dynamic chatbot responses and improve deployment speed and quality.

Hack OHI/O: Awarded 3rd Place · 2021
"A 48 hour hackathon that attracts over 800 participants annually for a full weekend of coding, building, learning, networking, and innovation"

· Developed an optimal trick-or-treating route planner using OpenStreetMap data and quadtrees to maximize predicted candy per mile walked.

Hack OHI/O: Awarded Best UI/UX & People's Choice · 2020

· Developed a web-based, voice-powered, natural language code editor to convert natural, spoken language into Python code in real time.
· Fine-tuned pretrained transformer models and developed a custom parser to convert natural language to structured code.

Hack OHI/O: Awarded Best Hack · 2019

· Developed an accessibility-focused text extraction app for visually impaired users.
· Used Tesseract OCR to extract text from images to provide content in a variety of accessible formats.

Brain Health Hack: Awarded Best Project at Large · 2018
"Teams of future scientists, clinicians, engineers and coders compete to create tools that enable better care, more powerful research, or ruther empower patients to live independent and productive lives"

· Developed a Android and iOS Parkinson's Disease tracking app to improve effectiveness of medication.
· Used device accelerometers to measure a user's tremors to improve effectiveness of medication.

Hack OHI/O: Awarded Best Software Hack · 2017

· Developed an iOS social media trend aggregator in 24 hours to aggregate trending topics on Twitter and Instagram.

ADDITIONAL INFO

OSU Club Powerlifting	August 2021 - Present
OSU Club Water Polo	August 2017 - Present
· Club Risk Manager	August 2020 - May 2021
Study abroad in Dresden, Germany	June 2019 - August 2019
· Awarded Huntington International Fellowship	
Cincinnati Marathon Finisher	May 2023