

# SAMUEL STEVENS

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## RESEARCH INTERESTS

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Natural language processing, out-of-distribution robustness and model interpretability.

## EDUCATION

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### Ohio State University

Ph.D. in Computer Science & Engineering  
Advisor: Professor Yu Su

August 2021 - Present

*Columbus, OH*

### Ohio State University (3.93 GPA)

Honors B.S. in Computer Science & Engineering, *Summa Cum Laude*  
Honors Research Distinction in Computer Science & Engineering  
German Minor

August 2017 - May 2021

*Columbus, OH*

## PUBLICATIONS

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An Investigation of Language Model Interpretability via Sentence Editing

**Samuel Stevens** and Yu Su

BlackboxNLP 2021 (4th edition)

## RESEARCH EXPERIENCE

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### Self-Attention Interpretability in Sequence Classification

*Undegraduate Honors Research Thesis*

October 2019 - April 2021

*Columbus, OH*

- Fine-tuned pre-trained language models on existing sequence classification task.
- Manually created adversarial examples to probe language models' understanding of the task.
- Qualitatively analyzed trends in the attention maps of BERT, SciBERT and RoBERTa to identify differences in interpretability.
- Identified a gap in existing literature (no large-scale quantitative measurement of BERT's interpretability on sequence level classification) and designed experiments leading to a baseline result.

## ENGINEERING EXPERIENCE

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### SpaceX (Starlink)

*Hardware Test Associate Engineer*

May 2021 - August 2021

*Seattle, WA*

- Refactored legacy code leading to \$66K expected annual savings and 25% increase in first-pass yield.
- Developed generic data visualization used to demonstrate micropositioner actuator repeatability and bound laser link noise during thermal testing.
- Debugged PCBA board with multimeter and oscilloscope with no previous hardware experience.
- Developed thermal camera testing prototype to reduce test time from over 30 minutes to 30 seconds.

### Microsoft

*Software Engineering Intern*

May 2020 - August 2020

*Seattle, WA (Remote)*

- Developed new Power BI feature to improve customers' ability to diagnose data-refresh problems.
- Authored feature spec to communicate intent and implementation details to feature stakeholders.

- Ramped up quickly in a 100 million-line C++ codebase to begin delivering value immediately.
- Demoed project to Power BI customers to demonstrate value and gain feedback.

### **TicketBay**

January 2018 - August 2020

*Co-Founder and 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.
- Applied agile methodology in a collaborative environment to meet specs, despite frequent changes
- Completed integration with existing deployment pipeline, leveraging existing infrastructure and leading to a net positive impact on product quality with no additional developer work.

### **The Ohio State University**

May 2018 - November 2019

*Lead Developer*

*Columbus, OH*

- Supported a professor's research by developing an online app to distribute rich media.
- Implemented agile methodology to manage 2 student developers in multiple time zones.

### **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**

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### **Hack OHI/O: Awarded Best UI/UX & People's Choice**

2020

*"A 48 hour hackathon that attracts over 800 participants annually for a full weekend of coding, building, learning, networking, and innovation"*

- 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 rather 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

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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	