

Education

The Johns Hopkins University

M.S.E. COMPUTER SCIENCE

Baltimore, MD

May 2018 - May 2019

- Advisor: Dr. Gregory D. Hager; Mentor: Dr. Ayushi Sinha
- Research Project: *Unsupervised Detection of Tool Presence in Endoscopic Video*
- GPA: 3.88/4.00
- **Relevant Coursework:** Vision as Bayesian Inference, Graphical Models, Fast Fourier Transform in Computer Graphics

The Johns Hopkins University

B.S., DOUBLE MAJOR IN MATHEMATICS AND COMPUTER SCIENCE

Baltimore, MD

Sep. 2014 - May 2018

- GPA: 3.87/4.00; Computer Science GPA: 3.77/4.00
- Dean's List every semester
- Graduated with Departmental Honors in Computer Science
- **Relevant Coursework:** Computer Vision, Machine Learning, Deep Learning, Approximation Algorithms, Data Structures, Modern Cryptography, Honors Complex Analysis, Honors Real Analysis, Abstract Algebra, Representation Theory

Experience

Facebook Inc.

SOFTWARE ENGINEER

Menlo Park, CA

August 2019 - Present

- Applied Machine Learning and Full-stack Engineer on Messenger Kids Growth
- Built user-facing features for A/B experimentation in order to grow Messenger Kids userbase
- Tuned and refined backend ranking models to increase new user activations on Messenger Kids
- Technologies used: Hack (PHP), Python, SQL, Objective-C, React Native

Johns Hopkins University

GRADUATE STUDENT RESEARCHER

Baltimore, MD

Jan 2019 - July 2019

- Developed a method for detecting surgical tool presence in endoscopic videos without requiring annotations
- Learned a representation for video frames using a variational autoencoder and performed prediction on representation using Markov chain Monte Carlo and LSTM-based future prediction methods.
- First-author paper accepted at CLIP Workshop at MICCAI 2020.

Facebook Inc.

SOFTWARE ENGINEER INTERN

Seattle, WA

Fall 2018

- Developed a visual real-time debugging pipeline for internal computer vision tools in Objective-C and C++ for Computational Photography
- Debug pipeline provided intuitive visualization of CV features and real-time adjustment of parameters in deep CV code with minimal overhead.

Pinterest

SOFTWARE ENGINEERING INTERN

San Francisco, CA

Summer 2018

- Developed an extensible human evaluation pipeline for support Search Features at Pinterest
- Created a method to evaluate trending query searches and top autocomplete results in order to filter sensitive content from appearing.
- Used Sofia, an internal interface to Amazon Mechanical Turk for performing human evaluation

Bloomberg LP

SOFTWARE ENGINEERING INTERN

New York, NY

Summer 2017

- Developed and prototyped a database system for storing, accessing, and recalculating sets of trade events in order to increase transparency in trading systems.
- Built prototype in SQL and C++ to interface with database system in Apache Druid to prepare replacement for a production system with more than 20 million trade events per day.

Publications

October 2020

Li D.Z., Ishii M., Taylor R.H., Hager G.D., Sinha A. (2020) Learning Representations of Endoscopic Videos to Detect Tool Presence Without Supervision. In: Syeda-Mahmood T. et al. (eds) Multimodal Learning for Clinical Decision Support and Clinical Image-Based Procedures. CLIP 2020, ML-CDS 2020. Lecture Notes in Computer Science, vol 12445. Springer, Cham.
https://doi.org/10.1007/978-3-030-60946-7_6. Oral Presentation given at workshop.

Presentations

MICCAI CLIP

ACCEPTED PAPER PRESENTATION

- Recorded talk on *Unsupervised Detection of Tool Presence in Endoscopic Video*, along with live Q&A.

Virtual

October 4, 2020

Symposium on Advances in Genomics, Epidemiology and Statistics (SAGES)

ACCEPTED POSTER PRESENTATION

- Unsupervised detection of tool presence in endoscopic video frames

Baltimore, MD

April 2019

JHU DOM/WSE Research Retreat

ACCEPTED POSTER PRESENTATION

- Unsupervised detection of tool presence in endoscopic video frames

Baltimore, MD

February 2019

Johns Hopkins Math Club Seminar Series

UNDERGRADUATE SEMINAR SPEAKER

- Presented *Ali Baba and the Zero Knowledge Proof*, an introduction to cryptography and the concept of zero-knowledge

Baltimore, MD

Spring 2018

Teaching

Johns Hopkins University

TEACHING ASSISTANT

- Calculus III (Fall 2016, Spring 2017). Detailed [notes](#) and exam preparation guides made available to students.
- Discrete Mathematics (Spring 2016)
- Automata & Computation Theory (Fall 2015)

Baltimore, MD

Honors & Awards

2014-18 **Dean's List Recipient every semester**, Johns Hopkins University

Baltimore, MD

2014 **Top 1000 Scorer (Score of 20)**, William Lowell Putnam Mathematical Competition

2015 **2nd place Privacy hack, top 8 Hardware hack**, HackPrinceton Fall 2015

Princeton, NJ

2013 **Gold Key Award for service to the school (awarded to 10% of class)**, Princeton High School

Princeton, NJ

Skills

Programming Languages Hack (PHP), Python (PyTorch, OpenCV), SQL, Objective-C, Javascript (React Native), C++
Languages English (native), Chinese (fluent spoken)