Zachary **Robertson**

GRADUATE STUDENT · RESEARCH ASSISTANT

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"Play is the highest form of research."

Education

Stanford   *Stanford, U.S.*

PH.D. IN COMPUTER SCIENCE   *Sept. 2022 -*

- Awarded EDGE fellowship
- NSF Honorary Mention

University of Illinois at Urbana-Champaign   *Champaign, U.S.*

MS IN COMPUTER SCIENCE   *Aug. 2020 - May. 2022*

- Thesis on Performance Metric Elicitation
- Awarded GEM fellowship
- Awarded Wing Kai Cheng Fellowship

University of Chicago   *Chicago, U.S.*

B.S. IN COMPUTATIONAL AND APPLIED MATH   *Oct. 2016 - Present*

- Working towards Honor's Thesis
- Jackie Robinson scholarship award for minority students

LoneStar Community College   *Spring, TX, U.S.*

ASSOCIATE DEGREE IN SCIENCE   *Oct. 2013 - May. 2016*

- President's List
- Home schooled with dual enrollment at local community college from 14-16

Skills

Programming	Python, LaTeX, C++, Haskell
Machine Learning	Keras, PyTorch
Math	Analysis, Optimization, Linear Algebra, Statistics

Experience

Google   *Mountain View, U.S.*

STUDENT RESEARCHER   *Apr. 2022 - Aug. 2022*

- Investigating role of metric elicitation in revenue maximization
- Applications to the training of machine learning classification algorithms

Sanmi Koyejo's Research Group at UIUC   *Champaign, U.S.*

RESEARCH ASSISTANT   *Jan. 2021 - Present*

- Investigating how to learn performance metrics from pair-wise comparison data
- Interested in imitation learning more broadly

Lam Research   *Fremont, U.S.*

RESEARCH INTERN   *June 2020 - March 2021*

- Lam is a major player in the design, manufacture, marketing, and service of semiconductor processing equipment used in the fabrication of integrated circuits
- Applied knowledge of reinforcement learning and machine learning to optimize the production flow of semi-conducting wafers
- Used Python, Open AI Gym, and Tensorflow

Robot Intelligence through Perception Lab at TTIC   *Chicago, U.S.*

RESEARCH ASSISTANT   *Jun. 2019 - June 2020*

- Implemented a model to do sparse-depth completion on a robot using PyTorch, Docker, and SLURM.
- Trained a simulated UR5 arm to pick up blocks from a table with natural language using PyTorch, OpenGym, and Mujoco.
- Engaged in theoretical study of reinforcement learning using regret based approach for Honor's Thesis

Exo-Planets Group at UChicago

Chicago, U.S.

RESEARCH ASSISTANT

June 2017 - Oct. 2018

- Worked on increasing calibration precision using machine learning (EM and pattern matching) to help align known spectra to those reported on the spectrograph pixel output
- Published a paper describing more efficient calibration software for spectrographs

Allen and Company LLC.

New York, U.S.

ANALYST

June 2018 - Aug. 2018

- Allen and Co. is a boutique investment banking firm that has advised on deals such as Facebook's acquisition of WhatsApp (2014) and hosts the annual Sun Valley Conference in Idaho
- Brought domain knowledge to help evaluate quantum computing startups and cryptocurrencies, automated formulaic internal reporting, and analyzed investor sentiment

Algorithmic Dynamics Lab

Stockholm, Sweden

SOFTWARE CONTRIBUTOR

June 2018 - Aug. 2018

- Developed an algorithm to approximately calculate algorithmic complexity for array data structures using Python.
- Completed remote course-work on algorithmic information dynamics hosted by the Santa Fe Institute and taught by Hector Zenil

Honors & Awards

2022	**Recipient**, EDGE Fellowship	*Stanford*
2021	**Honorary Mention**, NSF GRFP Fellowship	*UIUC*
2021	**Recipient**, Wing Kai Cheng Fellowship	*UIUC*
2020	**Recipient**, GEM Fellowship	*UChicago*
2018	**Recipient**, Dean's List	*UChicago*
2017	**Winner**, Illinois Blockchain Hackathon	*Chicago/Urbana*
2016	**Scholar**, Jackie Robinson Foundation	*New York*

Extracurricular Activity

Alignment Newsletter

CHAI

CONTRIBUTOR

Sept. 2019 - Present

- Wrote summaries and opinions on advances in machine learning for the Alignment Newsletter

Inter-House Council

UChicago

CHAIR OF PHILANTHROPY COMMITTEE

Oct. 2016 - June 2018

- Planned and implemented an update to the Saturday night meal pilot program for students with financial need.
- Used a portion of the saved money to help feed local people in need.

Chicago Maroon

UChicago

DATA ANALYSIS & WRITER

Oct. 2016 - 2018

- Conducted student polls and analyzed the results

Publications and Talks

1. Zachary Robertson, Hantao Zhang, and Sanmi Koyejo. Probabilistic performance metric elicitation. *1st Workshop on Human and Machine Decisions (WHMD 2021) at NeurIPS 2021*, 2022

2. Zachary Robertson and Matthew Walter. Concurrent training improves the performance of behavioral cloning from observation. *arXiv preprint arXiv:2008.01205*, 2020

3. Julian Stürmer, Andreas Seifahrt, Zachary Robertson, Christian Schwab, and Jacob L Bean. Echelle++, a fast generic spectrum simulator. *Publications of the Astronomical Society of the Pacific*, 131(996):024502, 2018