Krystal Maughan

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Research Interests: Differential Privacy, Fairness, Neural Networks

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University of Vermont, PhD candidate ***2019-present***
Differential Privacy, Fairness, Neural Networks
Skills: Haskell, Python, LaTeX, Jupyter, PySpark, PyTorch, Tensorflow, Git

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RELEVANT WORK EXPERIENCE

Research Assistant, PLAID Lab (Vermont) ***2019-present***
Supervisors: Joe Near and David Darais: Research on Provable Fairness and Privacy Using Machine Learning. Funded via Amazon Research Fellowship (2020-2022)

Graduate Writing Consultant, Fall 2020 (Vermont) ***2020***
Writing Mentor and Consultant for graduate students
Technical Writing Consultant for fields as broad as Materials Science to History

Autodesk, Summer 2020 (Pier 9, San Francisco: remote) ***2020***
Research Intern for Forge Team

Teacher's Assistant, Fall/Spring 2019-2020 (Vermont) ***2019-2020***
Compiler Construction with Haskell (taught by Joe Near) *2020*
Advanced Web Design (taught by Bob Erickson)
Programming with Matlab (taught by Radhakrishna Dasari) *2019*
Data Privacy with Jupyter, Python (taught by Joe Near)

Mercury (San Francisco) ***2019***
Wrote Haskell back-end application for stealth fintech startup as software intern
Used Haskell, Stack, Yesod, Nix, Postgres. Supervised by Max Tagher. (Summer)

Apple, Inc. (Sunnyvale) ***2019***
Software Intern, Wrote code for Security and Cloud at Scale (Spring)

Google Summer of Code for Haskell.org (remote) ***2018***
Wrote Debugging tools for CodeWorld[1],
A Google project sponsored by Haskell.org, under
Supervision of Chris Smith (Google) and Gabriel Gonzalez (Awake Security).
Used Haskell, GHCJS, Cabal.

[1] CodeWorld: https://github.com/google/codeworld/commits?author=kammitama5

Mozilla, Increasing Rust's Reach (remote) ***2018***
Worked on Implied Boolean Predicates[2],
For Command line tools in Rust, under Supervision of Aaron Power and Ed Page.
Worked in Rust, used Travis Continuous Integration

MERIT-BASED RESEARCH MENTORSHIPS

Mentee, LatinX in AI Research Workshop Mentorship with J. Barajas (ICML 2020) *2020*
Mentee, Lighthouse3 AI Ethics Mentoring Externship with F. McEvoy (1 of 20 chosen) *2020*

MERIT-BASED GRANTS / SCHOLARSHIPS / FELLOWSHIPS

ALife Student Scholarship Recipient (to attend ALife Conference) *2020*
BRAID Funding to attend Grace Hopper Conference (courtesy of UVM) *2020*
NCWIT Change Leader Scholar (1 of 30 chosen) *2020*
NCWIT Collegiate Award Finalist (1 of 85) *2019*
Code2040 2020 Fellow (1 of 80) *2019*
WiCyS Student Scholarship (Women in Cybersecurity) *2019*
Udacity Technology Scholarship (AI track): Intro to Deep Learning with Pytorch *2019*
Helium Grant (chosen as 1 of 11 out of 700) *2018*
EaRI Career Scholarship, (R Data Science Scholarship) - declined offer *2018*
Udacity Bertelsmann Data Science Scholarship - declined offer *2017*
AT and T Aspire to Tech grant Winner *2017*
NCAS Workshop participant (NASA Community College Aerospace Scholars) *2016*
Who's Who/ Peggy Williams Memorial Scholarship/ Best BFA Award (Best of Major) *2008*

OTHER GRANTS/ FELLOWSHIPS

Financial Aid Grant, SciPy (Scientific Computing with Python) *2020*
LXAI+BAI@GTC Nvidia Digital DLI Workshop Scholarship Award for DLI workshop *2020*
"Applications of AI for Anomaly Detection [LDLIW2249] (Deep Learning Institute at GTC)
ICERM (Brown University) Variable Precision in Mathematical & Scientific Thinking *2020*
RWC2020 (Real World Crypto: registration, flight, lodging) Grant via IACR *2020*
CRA-WP Grad Cohort for Women (covers flight, registration, lodging) *2019*
CRA-WP Grad Cohort for Underrepresented Minorities (flight, registration,lodging) *2019*
Neurips Conference Travel Grant (includes free registration) *2019*
Sage-Days-104 : To work on SageMath Software: Arithmetic Dynamics *2019*
Simons Institute (Berkeley) Error-Correcting Codes and High-Dimensional *2019*
Expansion Boot Camp (attendee)
ICERM (Brown University) Encrypted Search Workshop Grant (Lodging provided) *2019*
Cornell Number Theory Conference Grant (Lodging provided) *2019*
MSRI (Mathematical Sciences Research Institute) Grants to attend:
Optimal Transport and applications to machine learning and statistics *2020*
NASA L'Space NPWEE Concept Proposal writing programme participant *2019*
NASA L'Space Proposal/Review Academy (patentable research proposal for funding) *2019*
NASA L'Space Academy (virtual team & mentorship with NASA scientists Level 1) *2019*

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[2] Assert Predicates.rs: https://github.com/assert-rs/predicates-rs/commits?author=kammitama5
Assert Cmd.rs: https://github.com/assert-rs/assert_cmd/commits?author=kammitama5

OTHER GRANTS/ FELLOWSHIPS

Connections for Women: *2019*

- *Derived Algebraic Geometry, Birational Geometry and Moduli Spaces workshop*
- *Introductory Workshop: Derived Algebraic Geometry and Birational Geometry And Moduli Spaces*

Racket Summer School (National Science Foundation Grant) *2018-2019*
PLMW (Programming Languages Mentorship Workshop) *2018*
ICFP (International Conference Functional Programming)
PLMW(Programming Languages Mentorship Workshop) *2018*
PLDI (Programming Languages Design and Implementation)
OPLSS (Oregon Programming Languages Summer School Grant) - declined offer *2018*

INDUSTRY PhD INVITATIONS

Participant, Discover Bloomberg: Women in Engineering event (New York, remote) *2020*
Participant, Twitter PhD ML Flock Event (New York, Boston office) *2019*

Developer Conference Grants to attend:

AppSec (LA) 2019, TechTogetherBoston 2020, Twilio's Signal Conf 2019, Curry On! 2019, RustConf 2018, LambdaConf 2017/2018, Strange Loop 2017, Software Craftsmanship North America (SCNA), Clojure Conj 2016/2017, Clojure West 2017, Chrome Dev Summit 16-18, Google IO 2016-2019

REVIEWER

Reviewer and Programme Committee Member, LXAI@ICML Workshop *2020*
Committee Reviewer, HCI Track, GHC (Grace Hopper Conference) *2020*
Chair Reviewer, PML4DC (Practical ML for Developing Countries) workshop, ICLR (International Conference on Learning Representations) *2020*
Reviewer, Tapia Conference (Panels and Workshops) *2020*
Reviewer, Travel Grant Applications, Black in AI for AAAI (Association for the Advancement of Artificial Intelligence) *2020*
Reviewer, Travel Grant Applications, Clojure Conj (2 rounds) *2017*

SERVICE (AI/Machine Learning)

Invited Panelist, Career Girls AI Virtual Camp *2020*
Volunteer, EC'20 (Economics and Computation) *2020*
Volunteer, ICLR (International Conference on Learning Representations) *2020*
Member, MD4SG (Mechanism Design for Social Good); Education working group *2020*
Chair, AAAI Black in AI Annual Lunch *2020*
Panelist, AAAI Try AI Workshop *2020*
Invited Panelist, CRAFT workshop, FAT conference (declined offer)* *2020*

SERVICE (Other)

Student volunteer, ICFP (International Conference Functional Programming) *2018*
Student volunteer, PLDI (Programming Languages Design and Implementation) *2018*
Student volunteer, POPL (Principles of Programming Languages) *2018*
Google Developer Student Club Lead (for University of Vermont) *2019*

RESEARCH TALKS & POSTER PRESENTATIONS

Carnegie Mellon's (CMU) AI for Social Good Symposium (poster, 2 min talk) 2020
"Personalized Robotic Control using MISL" for UVM/CS++ Research Day (20 min talk) 2019

WRITING / PUBLICATIONS / POSTS

Technical Writer, OpenMined Writing Team (technical articles on Deep Learning And Differential Privacy) 2020
Google Summer of Code "Breaking the Time-Space Barrier with Haskell" 2018

PRESS

Featured by Women of Silicon Valley, May Edition 2020
Interviewed for CareerGirls.org Boston (videographed at MIT) 2019
Featured by Coursera (Learner Story) 2017

FUNDRAISING / GRANT WRITING

e-Kaggle Days, Responsible for securing approx $20,000 in sponsorship funds 2020

INDUSTRY TALKS

Invited Guest, Corecursive Podcast (Technical Podcast) 2020
Women in Data Science talk "Why conferences matter" (40 min NeurIPS inspired talk) 2020
"Magic Gnomes: A GHC Compiler talk (5-minute talk at Github for Sentry's Show & Tell) 2019
"Denotational Semantics" (2 minute Lightning Talk for Meetup group) 2018
"Recap of Google I/O 2018" (20 minute presentation at Google Developer Group LA) 2018
CS Crew Project talk : contributing to Maths software (CodeWorld, SageMaths) 2019
CS Crew GSoC talk (40-minute talk about Google Summer of Code and Internships) 2019
CS293 Technical Interviewing Workshop Talk 2019

CLASSES (PhD)

Secure Computation; taught by Joe Near using Python (Fall) 2020
Numerical Analysis; taught by Chris Danforth (Fall)
Privacy, Law, Policy & Design by Ryan Kriger (Fall)
Machine Learning; taught by Safwan Wshah using Python (Spring)
Doctoral Research with advisors Joe Near and David Darais (Spring, Fall)
Software Verification; taught by David Darais using Agda (Fall) 2019
Data Privacy; taught by Joe Near using Python (Fall)
Computer Human Interaction; taught by Josh Bongard (Fall)

CLASSES (RELATED)

Participant (1 of 18), "Dark Matters", School for Poetic Computation 2020
(taught by American Artist : workshop on Surveillance, data, ethics, history of Silicon Valley)

ONLINE LEARNING (SELECTED)

DeepLearning.ai 2020

- *Neural Networks and Deep Learning*
- *Improving Deep Neural Networks: Hyperparameter Regularization and Optimization*
- *Structuring Machine Learning Projects*