Krystal Maughan

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Research Interests: Differential Privacy, Fairness, Machine Learning

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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 MENTORSHIPS / RESEARCH MENTORSHIPS

Mentee, Global Outreach Mentorship with Dr. Swathi Gupta (EC 2020)	*2020*
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*
Mentee, Code2040 Fellowship with Ben Waber	*2020*

MERIT-BASED GRANTS / SCHOLARSHIPS / FELLOWSHIPS

TechX Social Impact / Harvard Franklin Fellowship (1 of 12)	*2020*
Participant, Algorithmic Game Theory Mentoring Workshop (AMW) (co-located with EC 2020)	*2020*
WiML ICML Travel Funding Grant	*2020*
ALife Student Scholarship Recipient (to attend ALife Conference)	*2020*
BRAID Funding to attend Grace Hopper Conference (courtesy of UVM)	*2020*
Udacity's Machine Learning Scholarship for Microsoft Azure	*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

Grace Hopper Conference	*2020*
Women of Color in Technology Complimentary Registration	
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*

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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

Simons Institute (Berkeley) Error-Correcting Codes and High-Dimensional Expansion Boot Camp (attendee) 2019

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

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, Microsoft Research, Frontiers in Machine Learning (Redmond, remote) 2020

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

ACADEMIC 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

ACADEMIC SERVICE (AI/Machine Learning)

WiML Senior Program and Mentorship Co-Chair, WiML (NeurIPS) 2020

Session Facilitator, ICML 2020 for "Recommender System Research in Industry" (1 of 2) 2020

Volunteer ACL (Association of Computational Linguistics) 2020

Co-organizer, ACL (Association of Computational Linguistics) Black in AI Socials 2020

ACADEMIC SERVICE (AI/Machine Learning)

Volunteer, ICML 2020 (International Conference on Machine Learning) *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*

ACADEMIC SERVICE (Other)

CDS&E Computational and Data-Enabled Science and Engineering *2020*
Database Grant Proposal for SageMaths (as Key Personnel) (PI Ben Hutz)
Student Volunteer, ICFP (International Conference Functional Programming) *2020*
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*
Student volunteer, SPLASH *2018*
(Systems, Programming, Languages, and Applications) (declined offer)

NON-ACADEMIC SERVICE

Judge, DataKind, Data.org, Inclusive Growth and Recovery Challenge *2020*
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

VentureBeat "AI needs systemic solutions to systemic bias, injustice and inequality" *2020*
Featured by Women of Silicon Valley, June Edition "16 Caribbean Techies" *2020*
Featured by Women of Silicon Valley, May Edition *2020*
Interviewed for CareerGirls.org Boston (videographed at MIT) *2019*
Featured by Coursera (Learner Story) *2017*

INDUSTRY TALKS

Presenter, VentureBeat's Transform 2020 Wrap-up for panel on Ethics and AI *2020*
Moderator, VentureBeat's Transform 2020 panel on Ethics and AI *2020*
Interviewed for Podcast, Women of Silicon Valley *2020*
Invited Panelist, Career Girls AI Virtual Camp *2020*
Invited Speaker, Autodesk Design (Boston Office) on Differential Privacy *2020*
Invited Speaker, Sister to Sister International, Inc (STSI) on AI, Privacy, Ethics *2020*

INDUSTRY TALKS

Invited Panelist, Morehouse@Momentum Coding School, "The Data Don't Lie" *2020*
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*

OTHER (NON-INDUSTRY) TALKS

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)
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)

Full Cohort Participant (1 of 18), "Dark Matters", School for Poetic Computation *2020*
(taught by American Artist : workshop on Surveillance, data, ethics,
history of Silicon Valley; guests included Dr. Simone Browne, Stephanie Dinkins and Rashida Richardson)

ONLINE LEARNING (SELECTED)

Participant, IBM Qiskit Global Quantum Computing Summer School *2020*
Participant, PL+HCI Swimmer Summer School *2020*
(Programming Languages + Human Computer Interaction)

DeepLearning.ai *2020*

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

FutureLearn

- *"Empire: The Controversies of British Imperialism"* *2020*
- *"Functional Programming in Haskell"* *2017*