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.*

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[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)	2020
(co-located with EC 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
EaRl 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, 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*
Co-organizer, ALife Hackathon	*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)

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

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

Moderator, VentureBeat's Transform 2020 panel on Ethics and AI	2020
Invited Panelist, Career Girls AI Virtual Camp	2020
Invited Speaker, Sister to Sister International, Inc (STSI) on AI, Privacy, Ethics	2020
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*