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: Python, Haskell, LaTeX, Jupyter, PySpark, PyTorch, Tensorflow, Git

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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)

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

Research Intern for Forge Team

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

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)	

RELEVANT WORK EXPERIENCE

Mercury: *Software Engineering Intern (San Francisco)*	*2019*
Apple, Inc.: *Software Engineering Intern (Sunnyvale)*	*2019*
Google Summer of Code: *Developer for Haskell.org (remote)*	*2018*
Mozilla: *Increasing Rust's Reach Developer (remote)*	*2018*

RESEARCH TALKS & POSTER PRESENTATIONS

Poster Presentation, 4th MD4SGD 2020 Annual Proceedings	*2020*
"Towards a Measure of Individual Fairness for Deep Learning" (first author)	
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*

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*

MERIT-BASED MENTORSHIPS / RESEARCH MENTORSHIPS

Mentee, Code2040 Fellowship with Ben Waber	*2020*

MERIT-BASED GRANTS / SCHOLARSHIPS

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)	*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*
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*
Connections for Women:	*2019*
- *Derived Algebraic Geometry, Birational Geometry and Moduli Spaces workshop*	
- *Introductory Workshop: Derived Algebraic Geometry and Birational Geometry*	
And Moduli Spaces	
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
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

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	2020
Reviewer, Tapia Conference (Panels and Workshops)	2020
Reviewer, Travel Grant Applications, Black in AI for AAAI	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
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 JOURNALS (AI/Machine Learning)

Board Member, AI and Ethics, Springer	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

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*

INDUSTRY PhD INVITATIONS

Participant, Adobe, "The Future of Creativity" (Virtual)	*2020*
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*

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*
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*

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

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)	

CLASSES (PhD)
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; 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