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, SQL, AWS, PySpark, PyTorch, Tensorflow, Git

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Research Assistant, PLAID Lab (Vermont)	***2019-present***

Supervisors: Joe Near and Emma Tosch: Research on Provable Fairness and Privacy
Using Machine Learning. Funded via Amazon Research Fellowship (2020-2022)

Research Assistant, PLAID Lab (Vermont)	***2020***

Supervisors: Joe Near and Swati Gupta: Research on Participatory Fairness

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

Research Intern for Forge Team, Differential Privacy project

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)	
Poster Presentation, Carnegie Mellon's (CMU) AI for Social Good Symposium	*2020*
"Examining Implicit Bias in Police Data: Lessons Learned about Reproducibility	
And Transparency in AI"	

RESEARCH TALKS & POSTER PRESENTATIONS

"Creating an end to end participatory data survey pipeline with variable constraints" 2020
Short talk at Data Economies and Governance MD4SG working group

"Towards a Measure of Individual Fairness for Deep Learning" ; 2020
Short Presentation given for UVM/CS++ Research Day (20 min talk)

"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. Swati Gupta (EC 2020)	2020
Mentee, LatinX in AI Research Workshop Mentorship with J. Barajas (ICML 2020)	2020
Mentee, Mentored by Amal Ahmed, (ICFP 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

Nominee, Microsoft Ada Lovelace Fellowship (1 of 2)	2020
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 (sponsor QuantumBlack)	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

NCWIT/Bloomberg GHC Conference Grant	2020
Grace Hopper Conference	2020
Women of Color in Technology Complimentary Registration	
Financial Aid Grant, SciPy (Scientific Computing with Python)	2020
MSRI SACNAS Grant	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

OTHER GRANTS/ FELLOWSHIPS

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 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
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 for AFCI workshop at NeurIPS (Fairness and Accountability)	2020
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)

Black in AI Logistics Co-Chair (NeurIPS)	2020
WiML Senior Program and Mentorship Co-Chair, WiML (NeurIPS)	2020
Committee Member, Zoom Infrastructure, EMNLP	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
Member, MD4SG Data and Governance working group	2020
Chair, AAAI Black in AI Annual Lunch	2020

ACADEMIC SERVICE (AI/Machine Learning)
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)
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
Participant, Git Contributors Inclusion Summit	2020
Reviewer, Code2040 Application Essays	2020
Reviewer, OpenMined Differential Privacy articles	2020
Judge, DataKind, Data.org, Inclusive Growth and Recovery Challenge	2020
Google Developer Student Club Lead (for University of Vermont)	2019

GRANT WRITING / PROPOSALS
CDS&E Computational and Data-Enabled Science and Engineering	2020
Database Grant Proposal for SageMaths (as Key Personnel) (PI Ben Hutz)	

WRITING / PUBLICATIONS / POSTS
Contributor, Wikipedia: WikiProject Women in Red/AI Ethics	2020
Tech X Social Impact "Impossible Markets and Big Dreams: My interaction with the COO of Impossible Foods"	2020
Tech X Social Impact "Ready! Start: Exploring the Virtual Healthcare Multiverse"	2020
Google Summer of Code "Breaking the Time-Space Barrier with Haskell"	2018

RESEARCH PhD INVITATIONS
Mediterranean Machine Learning Summer School (M2L) (Winter cohort)	2021

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

PRESS

Interviewed for CareerGirls.org Boston (videographed at MIT)	2019
Featured by Coursera (Learner Story)	2017

INDUSTRY TALKS

Speaker, EGG on Air Conference (human-centred AI)	2020
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

D&I (Diversity and Inclusion) Invitations (Academic Conferences):

KDD 2020 D&I Grant (free registration)	2020
ECCV 2020 (free registration courtesy Google Research)	2020

Developer Conference Grant/ Scholarship Invitations (Non-Academic Conferences):

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
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; guests included Dr. Simone Browne, Stephanie Dinkins and
Rashida Richardson)

ONLINE LEARNING (SELECTED)

Stanford ICME Summer NLP in Deep Learning Workshop	*2020*
Participant, IBM Qiskit Global Quantum Computing Summer School	*2020*
Participant, PL+HCI Swimmer Summer School	*2020*
(Programming Languages + Human Computer Interaction)	
Participant, MSRI, Decidability, Definability and Computability in Number Theory	*2020*

DeepLearning.ai   *2020*
- *Neural Networks and Deep Learning*
- *Improving Deep Neural Networks: Hyperparameter Regularization and Optimization*
- *Structuring Machine Learning Projects*

Hyperlink Academy   *2020*
- *Language Construction Workshop*
- *The Book is a Program 0 (Publishing a book in Racket)*
- *GUIs through Art History 0 (Recreating Periods of Art in History using GUIs)*

InterAccess
- *Parametric Thinking with Images (Grasshopper3D)*   *2020*
- *Generating Images with Shaders (GLSL)*

Gray Area Festival Workshops   *2020*
- *Conceptual Cartography with Mapbox*
- *Data Visualization: Theory to Practice*

Pioneer Works   *2020*
- *Feminist Data Set (with C. Sinders)*
- *AI + Creativity (A. Miller, D. Geers and A. Dorsen)*

FutureLearn
- *"Empire: The Controversies of British Imperialism"*   *2020*
- *The Laws of Digital Data, Content and Artificial Intelligence*   *2020*
- *"Functional Programming in Haskell"*   *2017*

Wendy's Subway
- *Reading workshop with Che Gossett on Abolitionist Insurgencies (C. Gossett)*   *2020*