

Manuel Sabin

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RESEARCH INTERESTS	<ul style="list-style-type: none">– Fine-Grained Complexity Theory, Pseudorandomness, Cryptography, Circuit Lower Bounds, and how these all influence each other– Interrogating the social impact of CS research, such as Algorithmic “Fairness” and Machine Learning’s use in the practice of Law, and the implicit values it often embeds
EMPLOYMENT	Postdoctoral Researcher, <i>COHUBICOL</i> 2020-2021 Hosted by Mireille Hildebrandt at Radboud University
EDUCATION	PhD UC Berkeley, <i>Computer Science</i> 2014-2020 Advised by Shafi Goldwasser and Christos Papadimitriou Thesis Title: <i>On the Utility of Fine-Grained Complexity Theory</i> BA CSU Sacramento, <i>Math/Computer Science</i> 2009-2014 Minor: Statistics Graduated with Highest Honors
PUBLICATIONS	XOR Codes and Sparse Learning Parity with Noise <i>with Andrej Bogadnov and Prashant Nalini Vasudevan</i> , in SODA 2019. Proofs of Work from Worst-Case Assumptions <i>with Marshall Ball, Alon Rosen, and Prashant Nalini Vasudevan</i> , in CRYPTO 2018. Fine-Grained Derandomization: From Problem-Centric to Resource-Centric Complexity <i>with Marco L. Carmosino and Russell Impagliazzo</i> , ICALP 2018. Average-Case Fine-Grained Hardness <i>with Marshall Ball, Alon Rosen, and Prashant Nalini Vasudevan</i> , STOC 2017.
WORKSHOPS	Resistance AI Workshop, co-organized for NeurIPS 2020 <ul style="list-style-type: none">– Co-organized with members of the Resistance AI collective with the lens of asking “How does AI shift power in the world?”– Centered Black and Indigenous activists, researchers, and organizers to present and discuss how to shift power back to marginalized communities Manifesting the Sociotechnical: Experimenting with Methods for Social Context and Social Justice, <i>with Ezra Goss, Lily Hu, and Stephanie Teeple</i> , in ACM FAccT* 2020. <ul style="list-style-type: none">– Collaborated with interdisciplinary team to create and run a workshop addressing the many Science and Technology Studies (STS) critiques of Algorithmic Fairness– Guided Fairness researchers through Community Organizing-inspired power analysis techniques to understand power differentials inherent in the field
PROGRAM COMMITTEE	Beyond Fairness: Towards a Just, Equitable, and Accountable Computer Vision <i>Workshop organized by Emily Denton and Timnit Gebru</i> , at CVPR 2021. Resistance AI <i>Jointly organized workshop</i> at NeurIPS 2020.

ORGANIZING AND ENGAGEMENT	Organizer in the Resistance AI Network	present
	<ul style="list-style-type: none"> – Active member of the Resistance AI network, helping form its principles, public statements, and activities as it has rapidly grown – Co-organized the Resistance AI workshop for NeurIPS 2020 	
	Prominently Featured in Simons Institute Educational Short Film	upcoming
	<ul style="list-style-type: none"> – Explained Complexity Theory for a general audience in plain English 	
	Presented at Queer in AI Workshop at ICML	Fall 2020
	<ul style="list-style-type: none"> – Gave a talk “<i>Queer</i>” in <i>AI: Moral Injury and Going Beyond Resilience</i> – Gave language and commiseration to the experience of being marginalized in academia and tech 	
	Founded the QTPRES Conference	Spring 2020 (<i>postponed due to COVID-19</i>)
	<ul style="list-style-type: none"> – Created, secured funding for, and co-organized <i>QT Presenters: QTPOC Reclaiming Education and Science (QTPRES)</i> Conference for sharing STEM concepts with the Queer, Trans, and POC (QTPOC) community in the SF Bay Area – Reframed ‘STEM’ as ‘the type of truth-seeking QTPOC are often excluded from’ (in contrast to the truth-seeking of poetry, art, film, music, dance etc) – New framing curbs STEM insecurities and allows the community to redefine the culture, presentation norms, questions of interest, framing etc from scratch 	
	Skype A Scientist	2017-2020
	<ul style="list-style-type: none"> – Skyped with various on-site and online high school and elementary school classrooms across the US including rural areas and with diverse demographics – Gave pop intuitions of theoretical CS and explained academic pathways, funding, traveling, and opportunities 	
	EECS Peer at UC Berkeley	2017-2020
	<ul style="list-style-type: none"> – Hold office hours for graduate students in EE and CS as a peer counselor 	
	Volunteered for Empowering Womxn Of Color Conference (EWOC)C	Spring 2018
	<ul style="list-style-type: none"> – Was a general volunteer for EWOC at UC Berkeley, helping this important conference go smoothly – Learned conference organization skills to later create my QTPRES conference for the Bay Area QTPOC community 	
	Dinner With a Scientist	Spring 2018
	<ul style="list-style-type: none"> – Had dinner with groups of 4th and 5th grade Oakland elementary students from underrepresented backgrounds and gave them insight into a career in STEM – Showed math “magic tricks” to poise math as a creative field that can get weird and interesting in higher education 	
	Mentor in Directed Reading Program at UC Berkeley	Fall 2017
	<ul style="list-style-type: none"> – Mentored Berkeley undergraduate Sichao (Jeff) Xu through complexity theory and derandomization literature 	
	Created and Maintained Blog <i>On The Shoulders Of Windmills</i>	2015-2016
	<ul style="list-style-type: none"> – Posted on our responsibilities as academics and scientists and on technology through a sociotechnical lens – Posted on my experiences in graduate school and openly on mental health in academia 	
	Graduate Panelist for the CSU Sacramento SHPE Chapter Conference	Fall 2014
	<ul style="list-style-type: none"> – Talked to Latinx undergraduates about the process and opportunities of academia – Gave information and resources on REUs, fellowships, and application processes 	
	Featured in <i>Si Magazine</i> that features role models for Latinx youths	Fall 2014

**TEACHING
AND
OUTREACH**

- E125: Engineering Ethics and Society Spring 2020
 – Worked with Prof. Raluca Scarlat to co-teach ethics in engineering through a sociotechnical lens
 – Helped direct reading list, co-facilitated class discussions, and graded
- Created and Taught Lessons in the Berkeley Math Circle Fall 2018
 – Introduced high school and middle school students to the philosophy of complexity theory using Interactive and Zero-Knowledge Proofs as concrete concepts
- CS276: Graduate Cryptography, Graduate Student Instructor Fall 2015
 – Assisted Alessandro Chiesa, *UC Berkeley*
 – Created/taught lessons on Zero-Knowledge Proofs, held office hours, and graded
- CS172: Computability and Complexity, Graduate Student Instructor Spring 2015
 – Assisted Luca Trevisan, *UC Berkeley*
 – Ran discussion sections, held office hours, and graded
- Jointly Taught NSF LSAMP Summer Math Program Summer 2014-2015
 – Taught incoming CSU Sacramento underrepresented STEM students
 – Guided students through problem solving on recreational math problems and calculus problems to reintroduce them to math as a creative and social activity
 – Trained in how to “spread thinking around a room”
- Project Creator/Leader for UC Berkeley SMASH Academy Summer 2014
 – Designed five-week math project for low-income high school STEM students
 – Used problem solving of recreational math problems, building to exploring pure math through Symmetry Groups to show math as a creative enterprise
- Assisted COSMOS Program with Monica Vazirani, *UC Davis* Summer 2014
 – Helped teach Summer program for exceptional high school students for one week
 – Gave students problems in basic Abstract Algebra and assisted them
- STAT50: Introduction to Probability and Statistics, Teaching Assistant Fall 2012
 – Assisted Dr. Coşkun Çetin, *CSU Sacramento*
 – Tutored students in Probability and held office hours
- Tutor in California State University Sacramento Math Lab 2011-2013
 – Tutored diverse undergraduate population in all core math courses

**INVITED
TALKS**

- Aalborg University SECURE Workshop May 2021
Participatory Privacy: Towards Returning Power and Autonomy to Communities
- Boston University Algorithms and Theory Seminar October 2020
*Discriminatory and Liberatory Algorithms:
Contextualizing and Renaming Algorithmic “Fairness”*
- Mechanism Design for Social Good Workshop August 2020
Discussant for Keynote Speaker Stephanie Dinkins
- ICML Queer in AI Workshop July 2020
“Queer” in AI: Moral Injury and Going Beyond Resilience
- Resistance AI Network June 2020
*Discriminatory and Liberatory Algorithms:
Contextualizing and Renaming Algorithmic “Fairness”*

	UC San Diego Theory Seminar <i>Discriminatory and Liberatory Algorithms: How Do We Define “Fair” Responsibly?</i>	May 2020
	Mechanism Design for Social Good Working Group on Bias <i>Discriminatory and Liberatory Algorithms: How Do We Define “Fair” Responsibly?</i>	March 2020
	Swarthmore College Computer Science Department <i>Discriminatory and Liberatory Algorithms: Restructuring Algorithmic “Fairness”</i>	February 2020
	Oberlin College Computer Science Department <i>Discriminatory and Liberatory Algorithms: Restructuring Algorithmic “Fairness”</i>	January 2020
	MIT Algorithms and Complexity Seminar <i>Discriminatory and Liberatory Algorithms: Restructuring Algorithmic “Fairness”</i>	November 2019
	Simons Institute Pseudorandomness Reunion <i>Fine-Grained Derandomization</i>	June 2018
	UC San Diego Theory Seminar <i>Fine-Grained Derandomization</i>	June 2018
	MIT Algorithms and Complexity Seminar <i>Fine-Grained Derandomization</i>	April 2018
	UC Berkeley Theory Lunch <i>Fine-Grained Derandomization</i>	February 2018
	Simons Institute Industry Day <i>Proofs of Work from Worst-Case Assumptions</i>	March 2017
	Stanford Theory Lunch <i>Average-Case Fine-Grained Hardness</i>	February 2017
	UC Berkeley Theory Lunch <i>Average-Case Fine-Grained Hardness</i>	January 2017
	Simons Institute Fine-Grained Complexity Reunion <i>Average-Case Fine-Grained Hardness</i>	December 2016
PARTICIPATED WORKSHOPS	Beyond Fairness: Towards a Just, Equitable, and Accountable Computer Vision <i>CVPR 2021</i>	Summer 2021
	CRYPTIC COMMONS: Transdisciplinary Probes of the Ideal and Real World in Actual Cyber-Physical Systems <i>SECURE at Aalborg University</i>	Spring 2021
	Philosopher’s Seminar: Interpretability Issues in Machine Learning <i>COHUBICOL</i>	Fall 2020
	Fairness	Summer 2019

	<i>Simons Institute Summer Cluster</i>	
	Lower Bounds in Computational Complexity <i>Simons Institute Semester</i>	Fall 2018
	Meta-Complexity <i>Oxford Mathematical Institute</i>	July 2018
	Pseudorandomness <i>Simons Institute Semester</i>	Spring 2017
	Winter School on the Sum of Squares Algorithm <i>UC San Diego</i>	January 2017
	Proof Complexity <i>Chebyshev Laboratory at St.Petersburg State University</i>	May 2016
	Fine-Grained Complexity & Algorithm Design <i>Simons Institute Semester</i>	Fall 2015
	Cryptography <i>Simons Institute Semester</i>	Summer 2015
	SAT & Satisfiability Modulo Theories Summer School <i>Stanford University</i>	July 2015
	Randomization in Numerical Linear Algebra <i>Gene Golub SIAM Summer School in Delphi, Greece</i>	June 2015
INTERNSHIPS	Visiting Researcher, <i>MIT</i> , Advised by Ryan Williams	Fall 2019
	Visiting Researcher, <i>UC San Diego</i> , Advised by Russell Impagliazzo	Summer 2018
	Visiting Researcher, <i>CUHK</i> , Advised by Andrej Bogdanov	Summer 2017
	FACT Center, <i>IDC Herzliya</i> , Advised by Alon Rosen	Summer 2016
	TRUST REU, <i>Stanford University</i> , Advised by Dan Boneh	Summer 2013
HONORS AND AWARDS	NSF Graduate Research Fellowship	Spring 2015
	Chancellor's Fellowship (campus-wide), <i>UC Berkeley</i>	Spring 2014
	Excellence Award, <i>Department of Computer Science, UC Berkeley</i>	Spring 2014
	Faculty Endowment Scholarship (campus-wide), <i>CSU Sacramento</i>	Spring 2014
	Commencement Speaker, <i>CSU Sacramento</i>	Spring 2014
	Roger Leezer Scholarship, <i>Department of Math, CSU Sacramento</i>	Fall 2013
	Stewart Moredock Scholarship, <i>Department of Math, CSU Sacramento</i>	Fall 2013
	President of CSUS Chapter of SIAM, <i>CSU Sacramento</i>	2012-2013
EXTERNAL REVIEWER	Journal of Cryptology (JoC) 2019, CRYPTO 2018, Foundations of Computer Science (FOCS) 2018, Theory of Cryptography Conference (TCC) 2018, Foundations of Computer Science (FOCS) 2017	