

Alexander Williams Tolbert

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Education

- 2019-** PhD Candidate in Philosophy- University of Pennsylvania
Advisers: Michael Kearns, Quayshawn Spencer, Anita Allen
Committee: Samuel Freeman, Aaron Roth, Scott Weinstein
- 2019-** M.A. in Statistics - The Wharton School, University of Pennsylvania
- 2017-2019** M.S. in Biochemistry - Virginia Polytechnic Institute and State University
- 2017-2019** M.A. in Philosophy - Virginia Polytechnic Institute and State University
- 2009-2013** B.S. in Biology - University of Mobile

Positions

- Fall 2020** Visiting Graduate Scholar - The Graduate School and University Center of the City University of New York
Supervisor: Charles Mills

Research

My fundamental interests are normative questions about equity, just social structure, and discrimination, particularly racial discrimination. I prefer formulating issues and finding proposed solutions in ways that have clear policy implications. My fundamental methodology is to seek to put aspects of those questions into frameworks to which various formal or empirical methods can be applied, to assess the results of such applications, and where possible contribute to improvements. My interest in formal techniques ranges over topics in machine learning, causal inference, algorithmic fairness, computational social science and economics, and algorithmic game theory. I use my training in social and political philosophy to try to inform and criticize the design of algorithms and models in the attempt to embed social values such as fairness and to avoid harms such as discrimination and bias.

Areas of Specialization

Philosophy of Science (Machine Learning, Statistics, Causal Inference, Game Theory, Social Science), **Applied Ethics** (Algorithmic Fairness, A.I. & Ethics, Bioethics), **Philosophy of Race, Social & Political Philosophy**

Areas of Competence

Africana Philosophy, Logic, Philosophy of Law, Philosophy of Biology

Works In Progress

1. Aaron Roth, Alexander Tolbert, and Scott Weinstein. Reconciling individual probability forecasts, 2022, Under Review
2. Alexander Tolbert. Under-representation and intersectionality bias: A moral and mathematical approach, 2022, In Progress
3. Alexander Tolbert. A capabilities approach for causal estimation: Detecting discrimination of non-manipulation variables, 2022, In Progress
4. Alexander Tolbert. Causal race agnosticism: What makes a variable a good causal variable?, 2022, In Progress
5. Alexander Tolbert. Ameliorating a.i.: Data ethics and responsible computing for socially aware data science, 2022, In Progress

Talks and Presentations

1. *Biennial Meeting of the Philosophy of Science Association* "Causal Race Agnosticism" Upcoming.
2. *TOCAFairness Seminar, Simons Collaboration on the Theory of Algorithmic Fairness, supported by The Simons Foundation.* "Individual Probability, Reference Class Problem, Model Multiplicity, Reconciling Belief", Upcoming.
3. *Penn Law Symposium on Innovation and Criminal Justice*, "Algorithms in Criminal Justice" Panel, 2022.
4. *Biennial Meeting of the Philosophy of Science Association* "Against Predictive Invariance" 2021.
5. *Biennial Meeting of the Philosophy of Science Association* "Exploitation, or Amelioration? Dueling Pictures of Data-Scientific Rationality", 2021.
6. *Bias and Discrimination in Big Data and Algorithmic Processing Conference – BIAS* "Against Predictive Invariance", 2021.
7. *Pacific Division Meeting: American Philosophical Association*, "Causation and Algorithmic (un)Fairness in Machine Learning", 2021.
8. *Eastern Division Meeting: American Philosophical Association*, "Causation and Algorithmic (un)Fairness in Machine Learning", 2021.
9. *Ernest E. Just Biomedical Society at the University of Pennsylvania* "Causation and Algorithmic (un)Fairness in Machine Learning", 2020.
10. *Philosophy and Physical Computing Conference* "Dynamics and Biochemical Kinds", 2019.
11. *Virginia Tech Department of Biochemistry Speakers in Biochemistry Series* "Exploring the Ability of the Inositol 1,3,4 Trisphosphate 5/6-Kinase (ITPK) to Accommodate Inositol hexakisphosphate (InsP6).", 2019.
12. *Philosophy and Physical Computing Conference* "Finding Natural Kinds", 2018.

Professional Experience

Jun 2022 - Present - Amazon Web Services (Remote)
Research Scientist II Intern
Supervisor: Peter Hallinan
Research Topic: Algorithmic Harm and Bias Database (Working Paper)
Language: Python

Jun 2021 - Amazon Web Services (Remote)
Sep 2021 *Research Scientist Intern*
Supervisor: Peter Hallinan
Research Topic: An Algorithmic Framework for Bias
Language: Python

Jun 2022- Wharton Sports Analytics and Business Initiative, University of Pennsylvania, Philadelphia, PA
Aug 2022 *Instructor*
Supervisor: Abraham J. Wyner
Duties: Instructor for Money-ball Academy. This is a program designed to draw in talented middle and high school students from minority and underrepresented backgrounds into coding and data science.
Language: R

Service

Founder and Organizer, W. E. B. Du Bois, Ida B. Wells Symposium on Socially Aware Data Science and Ethical Issues in Modeling (2022-)

Founder and Organizer, University of Pennsylvania Philosophy of Computation and Data Workshop (2021-)

Organizer, Penn-Rutgers Philosophy of Race Reading Group (2020-)

Africana Summer Institute Fellow, University of Pennsylvania (2020-2021)

Co-President, Minorities and Philosophy, Virginia Tech (2018-2019)

Editorial assistant, HOPOS: The Journal of the International Society for the History of Philosophy of Science (2018-2019)

Teaching Assistantships

University of Pennsylvania

VLST 101: Eye, Mind, and Image (Spring 2022)

PHIL 025-001: Philosophy of Science (Fall 2021)

PHIL 077: Philosophy of Law (Spring 2021)

PHIL 277-001: Justice, Law, and Morality (Fall 2020)

Virginia Polytechnic Institute and State University

PHIL 2125: History of Modern Philosophy (Fall 2018)

PHIL 1304: Morality and Justice (Spring 2017)

PHIL 1304: Knowledge and Reality (Fall 2017)

Select Coursework

University of Pennsylvania

Philosophy of Race (Spring 2022)
Modern Statistical Learning Theory (Spring 2022)
Mathematics of High Dimensional Data (Spring 2022)
Algorithmic Fairness (Fall 2021)
Theoretical Machine Learning & Algorithms (Fall 2021)
Observational Studies (Spring 2021)
Modern Data Mining (Spring 2021)
Kant and Kantian Moral Constructivism (Spring 2021)
Introduction To Africa and African Diaspora Thought (Fall 2020)
Mathematical Foundations of Computer Science (Fall 2020)
Introduction to Nonparametric Methods and Log-linear Models (2020)
Liberalism and Challenges of Racial and Economic Justice (2020)
Mathematical Logic (Spring 2020)
Modern Political Philosophy (Spring 2020)
Plato's Republic (Fall 2019)
Applied Regression and Analysis of Variance (Fall 2029)
The Methodology of Political Philosophy (Fall 2029)

Virginia Polytechnic Institute and State University

Intermediate Philosophy of Science (Fall 2018)
Issues in Bioethics (Spring 2018)
Intermediate Philosophy of Biology (Spring 2018)
Advanced Logic: Set Theory, Analysis, and Model Theory (Spring 2018)
Kant's Critique of Pure Reason (Fall 2017)
Symbolic Logic (Fall 2017)
Origins of Analytic Philosophy (Fall 2017)

Programming Skills

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| ■ Proficient | ■ Familiarity | ■ Everyday Workflow |
| R | SQL | LaTeX |
| Python | Java | Git |

Awards

Fontaine Fellow, University of Pennsylvania (2019-)
Graduate Scholar, Multicultural Academic Opportunities Program, Virginia (2017-2019)

Other

University of Pennsylvania Africana Studies Certification (In Progress)

University of Pennsylvania Center for Teaching and Learning Teaching Certification (In Progress)

References

Available upon request