DANIEL MALINSKY

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Date of Preparation of CV: August 17, 2020

ACADEMIC APPOINTMENTS

07/2020–present Assistant Professor
Department of Biostatistics
Mailman School of Public Health
Columbia University

Affiliate, Columbia Data Science Institute

EDUCATION

08/2012–12/2017 Carnegie Mellon University

PhD in Logic, Computation, and Methodology (2017)
Dissertation title: "Data-driven causal modeling for policy"
Committee: Peter Spirtes, Clark Glymour, David Danks, and Kevin Hoover

MS in Logic, Computation, and Methodology (2015)
Thesis title: "Estimating intervention effects in systems with unobserved confounding"
Committee: Peter Spirtes and Clark Glymour

09/2007–05/2011 Columbia University

Bachelor of Arts *cum laude* (2011)
Majors in Physics and Music
Concentration (Minor) in Philosophy

TRAINING

01/2018–06/2020 Johns Hopkins University

Postdoctoral Fellow
Department of Computer Science
Supervisors: Ilya Shpitser (JHU) and Eric J. Tchetgen Tchetgen (UPenn)

ACADEMIC SERVICE

Committee Member	CMU faculty search committee (2014 & 2016)
Committee Member	Pitt-CMU graduate conference organizing committee (2014–2015)
Committee Member	CMU graduate admissions committee (2013)
Representative	CMU graduate student representative to the faculty (2015–2016)

PROFESSIONAL ORGANIZATIONS AND SOCIETIES

Member	American Statistical Association (2020–present)
Session Organizer	Atlantic Causal Inference Conference (2018)
Session Chair	Eastern North American Regional (ENAR) Meeting of the International Biometric Society (2020)
Reviewer	Conferences: AAAI, ICML, NeurIPS, UAI Workshops: BIBM-CABB, KDD-CD Journals: *Behaviormetrika*, *Econometrics*, *Erkenntnis*, *International Journal of Approximate Reasoning*, *Journal of the American Statistical Association*, *Journal of Causal Inference*, *Journal of Data Science and Analytics*, *Journal of Machine Learning Research*, *Journal of the Royal Statistical Society: Series B*, *Philosophy of Science*, *Science Advances*, *Synthese*
	AAAI Outstanding Program Committee Member Award, 2019

FELLOWSHIP AND GRANT SUPPORT

PAST SUPPORT

1/2020–6/2020	FAI: Quantifying Direct and Indirect Consequences of Racial Disparities in Outcomes Following Cardiac Surgery, NSF Award 1939675 Amount: $169,734 over 1 year, PI: Ilya Shpitser Role: Key Personnel (Postdoctoral Fellow), 45% effort

EDUCATIONAL CONTRIBUTIONS

DIRECT TEACHING

Spring 2018	Machine Learning: Data to Models (at Johns Hopkins) Enrollment approximately 50 students, undergraduate and graduate
Spring 2017	Social Structure, Public Policy, & Ethics (at Carnegie Mellon) Enrollment approximately 25 students, undergraduate
Summers 2014, 2015	Introduction to Political Philosophy (at Carnegie Mellon) Enrollment approximately 5 students, undergraduate
Summer 2013	Introduction to Ethics (at Carnegie Mellon) Enrollment approximately 5 students, undergraduate

GUEST LECTURES

Nov. 2019	"Introduction to Causal Inference" (at University of Maryland) Research Methods course for Pharmaceutical Health Services students Enrollment approximately 7 students, graduate

PUBLICATIONS

UNDER REVIEW / SUBMITTED

1. N. Sani*, **D. Malinsky***, I. Shpitser (2020) "Explaining the Behavior of Black-Box Prediction Algorithms with Causal Learning." Submitted. arXiv 2006.02482 (*co-first authors)
2. **D. Malinsky**, I. Shpitser, and E. J. Tchetgen Tchetgen (2019) "Semiparametric Inference for Non-monotone Missing-Not-at-Random Data: the No Self-Censoring Model." Submitted. arXiv 1909.01848.
3. J. D. Ramsey, **D. Malinsky**, and K. V. Bui (2019) "`algcomparison`: Comparing the Performance of Graphical Structure Learning Algorithms with TETRAD." Submitted. arXiv 1607.08110.
4. R. Nabi, **D. Malinsky**, and I. Shpitser (2019) "Optimal Training of Fair Predictive Models." Under revision. arXiv 1910.04109.

PEER-REVIEWED RESEARCH PUBLICATIONS

1. R. Bhattacharya, **D. Malinsky**, and I. Shpitser (2019) "Causal Inference Under Interference and Network Uncertainty." In *Proceedings of the 35th Conference on Uncertainty in Artificial Intelligence* (UAI).

2. R. Nabi, **D. Malinsky**, and I. Shpitser (2019) "Learning Optimal Fair Policies." In *Proceedings of the 36th International Conference on Machine Learning* (ICML).

3. **D. Malinsky**, I. Shpitser, and T. S. Richardson (2019) "A Potential Outcomes Calculus for Identifying Conditional Path-Specific Effects." In *Proceedings of the 22nd International Conference on Artificial Intelligence and Statistics* (AISTATS).

4. **D. Malinsky** and P. Spirtes (2019) "Learning the Structure of a Nonstationary Vector Autoregression." In *Proceedings of the 22nd International Conference on Artificial Intelligence and Statistics* (AISTATS).

5. S. W. Mogensen, **D. Malinsky**, and N. R. Hansen (2018) "Causal Learning for Partially Observed Stochastic Dynamical Systems." In *Proceedings of the 34th Conference on Uncertainty in Artificial Intelligence* (UAI).

6. **D. Malinsky** and P. Spirtes (2018) "Causal Structure Learning from Multivariate Time Series in Settings with Unmeasured Confounding." In *Proceedings of the 2018 ACM SIGKDD Workshop on Causal Discovery* (KDD-CD).

7. **D. Malinsky** and D. Danks (2018) "Causal Discovery Algorithms: A Practical Guide." *Philosophy Compass* 13: e12470.

8. **D. Malinsky** (2018) "Intervening on Structure." *Synthese* 135(5): 2295-2312.

9. **D. Malinsky** and P. Spirtes (2017) "Estimating Bounds on Causal Effects in High-dimensional and Possibly Confounded Systems." *International Journal of Approximate Reasoning* 88: 371-384.

10. **D. Malinsky** and P. Spirtes (2016) "Estimating Causal Effects with Ancestral Graph Markov Models." In *Proceedings of the Eighth International Conference on Probabilistic Graphical Models* (PGM).

11. L. K. Bright, **D. Malinsky**, and M. Thompson (2016) "Causally Interpreting Intersectionality Theory." *Philosophy of Science* 83(1): 60-81.

12. **D. Malinsky** (2015) "Hypothesis Testing, 'Dutch Book' Arguments, and Risk." *Philosophy of Science* 82(5): 917-929.

TECHNICAL REPORTS

1. L. Carminati, M. Delmastro, M. Hance, M. Jimenez Belenguer, R. Ishmukhametov, Z. Liang, G. Marchiori, V. Perez Reale, **D. Malinsky**, M. Tripiana, and G. Unal (2011) "Reconstruction and Identification Efficiency of Inclusive Isolated Photons." ATLAS Collaboration Note ATL-PHYS-INT-2011-014, CERN, Geneva.

OTHER MEDIA

1. I. Shpitser and **D. Malinsky** (2020) "Using Causal Reasoning To Guide Algorithms Toward a Fairer World." *The Ethical Machine*, Shorenstein Center on Media, Politics, and Public Policy, Harvard Kennedy School.

PRESENTATIONS

SCIENTIFIC MEETINGS (**DESIGNATES INVITED)

2020 "Semiparametric inference for non-monotone missing-not-at-random data: the no self-censoring model"**
Joint Statistical Meetings (Virtual)

2019 "Fairness by causal mediation analysis: criteria, algorithms, and open problems"**
Johns Hopkins Behavioral Science Forum on Artificial Intelligence (Baltimore, USA)

2019 "Learning optimal fair policies"
10th Workshop in Decisions, Games, & Logic: Ethics, Statistics, and Fair AI (Pasadena, USA)

2019 "Data-driven causal inference for applications in political economy"
2nd Annual Conference on Politics and Computational Social Science (Washington DC, USA)

2019 "A potential outcomes calculus for identifying conditional path-specific effects"
Atlantic Causal Inference Conference (Montreal, CA)

2018 "Learning about changes to causal structure"**
Conference on Causation vs Constitution, University of Bergen (Bergen, Norway)

2018 "Causal structure learning from multivariate time series in settings with unmeasured confounding"
KDD Workshop on Causal Discovery (London, UK)

2018 "Causal structure learning from partially observed and nonstationary multivariate time series"
Atlantic Causal Inference Conference (Pittsburgh, USA)

2016 "Learning causal models from time series data with latent variables"**
9th International Conference of the ERCIM Working Group on Computational and Methodological Statistics (CMStatistics) (Seville, Spain)

2016 "Estimating causal effects with ancestral graph Markov models"
Eighth International Conference on Probabilistic Graphical Models (Lugano, Switzerland)

2016 "Decision making under causal uncertainty"
Explanation, Normativity, and Uncertainty in Economic Modelling at the London School of Economics (London, UK)

2016 "Decision making under causal uncertainty"
Munich-Sydney-Tilburg Conference on Evidence, Inference, and Risk (Munich, Germany)

2015 "Using graphical models for data-driven estimates of causal effects"
XII Conference of the International Network for Economic Method (Cape Town, South Africa)

INVITED SEMINARS

2020 Invited Discussant of presentation by M. Maathuis
Online Causal Inference Seminar (Virtual)

2020 "Causal model selection from nonstationary time series data"
Massive Data Institute, Georgetown University (Washington DC, USA)

2020 "Graphical causal model selection for applications in health and policy"
Division of Biostatistics, University of Pennsylvania (Philadelphia, USA)

2020 "Graphical causal model selection for applications in health and policy"
Department of Mathematics and Statistics, University of Maryland Baltimore County (Baltimore, USA)

2020 "Graphical causal model selection for applications in health and policy"
Department of Statistics, Rutgers University (New Brunswick, USA)

2020 "Graphical causal model selection for applications in health and policy"
Department of Biostatistics, Columbia School of Public Health (New York, USA)

2019 "A primer on causal structure learning with graphical models"
Division of General Medicine (MESA Group), Columbia University Medical Center (New York, USA)

2018 "Learning the structure of causal graphical models from observational data"
Department of Biostatistics (Causal Inference Group), Johns Hopkins School of Public Health (Boston, USA)

2018 "Learning the structure of causal graphical models from observational data"
Department of Biostatistics (Causal Inference Group), Harvard School of Public Health (Boston, USA)

2017 "Learning ancestral graph Markov models from multivariate time series"
Seminar in Applied Mathematics and Statistics, University of Copenhagen (Copenhagen, Denmark)

2017 "Graphical structure learning and data-driven causal inference for policy applications"
Depts of Statistics and Economics, University of California, Riverside (Riverside, USA)

2016 "Estimating causal effects with graphical models in systems with latent confounding"
Machine Learning Lunch Seminar at Carnegie Mellon University (Pittsburgh, USA)