

# Drago Plečko

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## Academic Positions

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### Assistant Professor (Tenure-Track)

*Department of Statistics & Data Science, UCLA*

2025–now

### Postdoctoral Research Scholar

*Department of Computer Science, Columbia University*

*Supervised by Elias Bareinboim*

2022–2025

## Education

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### PhD in Statistics

*Department of Mathematics, ETH Zürich*

*Supervised by Nicolai Meinshausen*

2018–2022

### Bachelor's and Master's in Mathematics

*Queens' College, University of Cambridge*

*First class honors, Distinction*

2014–2018

## Service

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### Reviewer

*Journal of Machine Learning Research (JMLR)*

*Journal of American Statistical Association (JASA)*

*Statistical Science*

*Neural Information Processing Systems (NeurIPS)*

*International Conference on Machine Learning (ICML)*

*International Conference on Learning Representations (ICLR)*

2021–now

## Teaching

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### Columbia University Lectures

- Spring 2023 – eight-lecture course on Fair Machine Learning within Causal Inference class

### ETH Zürich Course Assistant

- Spring 2022, Spring 2019 – teaching assistant Applied Multivariate Statistics
- Autumn 2020 – teaching assistant Applied Statistical Regression
- Spring 2020 – teaching assistant Computational Statistics
- Autumn 2019 – teaching assistant Statistical Modelling

## Awards

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**International olympiad on Astronomy and Astrophysics (IOAA)**

Bronze Medal

2013

## List of Publications - Drago Plečko

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- [1] **Drago Plečko** and Elias Bareinboim. Causal fairness analysis. *Foundations and Trends in Machine Learning*, 17 (3):304–589, 2024.
- [2] **Drago Plečko** and Nicolai Meinshausen. Fair data adaptation with quantile preservation. *Journal of Machine Learning Research*, 21:242, 2020.
- [3] **Drago Plečko** and Elias Bareinboim. Causal fairness for outcome control. *Advances in Neural Information Processing Systems (NeurIPS)*, 36, 2023.
- [4] **Drago Plečko** and Elias Bareinboim. Mind the gap: A causal perspective on bias amplification in prediction & decision-making. *Advances in Neural Information Processing Systems (NeurIPS)*, 2024.
- [5] **Drago Plečko**, Paul Secombe, Andrea Clarke, Amelia Fiske, Samarra Toby, Donisha Duff, David Pilcher, Leo Anthony Celi, Rinaldo Bellomo, and Elias Bareinboim. An algorithmic approach for causal health equity: A look at race differentials in intensive care unit (icu) outcomes. *arXiv preprint arXiv:2501.05197*, 2025. Under review in *Nature*.
- [6] **Drago Plečko**, Nicolas Bennett, and Nicolai Meinshausen. fairadapt: Causal reasoning for fair data preprocessing. *Journal of Statistical Software*, 110(4), 2024. ISSN 1548-7660. doi: 10.18637/jss.v110.i04.
- [7] **Drago Plečko** and Elias Bareinboim. A causal framework for decomposing spurious variations. *Advances in Neural Information Processing Systems (NeurIPS)*, 36, 2023.
- [8] **Drago Plečko** and Elias Bareinboim. Reconciling predictive and statistical parity: A causal approach. *Proceedings of the 38th AAAI Conference on Artificial Intelligence*, 2024.
- [9] **Drago Plečko** and Elias Bareinboim. Fairness-accuracy trade-offs: A causal perspective. *Proceedings of the 39th AAAI Conference on Artificial Intelligence*, 2025.
- [10] **Drago Plečko**. Interaction testing in variation analysis. *arXiv preprint arXiv:2411.08861*, 2024.
- [11] **Drago Plečko**. Sensitivity analysis for causal effects under missing binary data: Application to the obesity paradox. Technical report, DPlecko R-11, Columbia University, 2024. URL <https://www.cs.columbia.edu/~dplecko/r11.pdf>. Under review in *Annals of Applied Statistics*.
- [12] **Drago Plečko**, Collin Wang, and Elias Bareinboim. Causal algorithmic recourse: From copulas to learning from recourse data. Technical report, DPlecko R-12, Columbia University, 2024. URL <https://www.cs.columbia.edu/~dplecko/r12.pdf>.

- [13] **Drago Plečko**, Elias Bareinboim, Domagoj Bradač, and Matija Bucić. Beyond the back-door: Probabilities of identification. Technical report, DPlecko R-15, Columbia University, 2024. URL <https://www.cs.columbia.edu/~dplecko/r15.pdf>.
- [14] Aurghya Maiti, **Drago Plečko**, and Elias Bareinboim. Counterfactual identification under monotonicity constraints. *Proceedings of the 39th AAAI Conference on Artificial Intelligence*, 2025.
- [15] **Drago Plečko**, Nicolas Bennett, Johan Mårtensson, and Rinaldo Bellomo. The obesity paradox and hypoglycemia in critically ill patients. *Critical Care*, 25(1):1–15, 2021.
- [16] **Drago Plečko**, Lucy Modra, David Pilcher, and Rinaldo Bellomo. The impact of sex, age, and height on the obesity paradox. *Critical Care Medicine*, 2024. Revision R1 under review.
- [17] Drago Plečko, Nicolas Bennett, Ida-Fong Ukor, Niklas Rodemund, Ary Serpa-Neto, and Peter Bühlmann. A framework and analytical exploration for a data-driven update of the sequential organ failure assessment (sofa) score in sepsis. *Critical Care and Resuscitation*, 27(1):100105, 2025.
- [18] **Drago Plečko**, Nicolas Bennett, Johan Mårtensson, Tariq Dam, Robert Entjes, Thijs Rettig, Dave Dongelmans, Age Boelens, Sander Rigter, Stefaan Hendriks, Remko Jong, Marlijn Kamps, Marco Peters, Attila Karakus, Diederik Gommers, Dharmanand Ramnarain, Evert-Jan Wils, Sefanja Achterberg, Ralph Nowitzky, and Rinaldo Bellomo. Rapid Evaluation of Coronavirus Illness Severity (RECOILS) in Intensive Care: Development and Validation of a Prognostic Tool for In-Hospital Mortality. *Acta Anaesthesiologica Scandinavica*, 0(0):1–11, 10 2021.
- [19] Nicolas Bennett\*, **Drago Plečko**\*, Ida-Fong Ukor, Nicolai Meinshausen, and Peter Bühlmann. ricu: R's interface to intensive care data. *GigaScience*, 12:giad041, 2023.
- [20] Michael Moor\*, Nicolas Bennett\*, **Drago Plečko**\*, Max Horn\*, Bastian Rieck, Nicolai Meinshausen, Peter Bühlmann, and Karsten Borgwardt. Predicting sepsis using deep learning across international sites: a retrospective development and validation study. *The Lancet eClinical Medicine*, 62:102124, 2023.

## Tutorials

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- (1) **Drago Plečko** and Elias Bareinboim. Causal Fairness Analysis Tutorial. International Conference on Machine Learning, ICML 2022.
- (2) **Drago Plečko** and Elias Bareinboim. Causal Fairness Analysis Tutorial. AAAI Conference on Artificial Intelligence, AAAI 2024.
- (3) **Drago Plečko** and Elias Bareinboim. Causal Fairness Analysis Tutorial. ECAI European Conference on Artificial Intelligence, ECAI 2024.

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\* denotes equal contribution authorship.