

# Nil-Jana Akpinar

Ph.D. Student in Statistics and Machine Learning

🌐 <https://nakpinar.github.io/>

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🐦 @niljanaakpinar

## RESEARCH INTERESTS

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Machine learning • Algorithmic fairness • Societal impacts • Responsible AI

## EDUCATION

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### Carnegie Mellon University

Pittsburgh, PA

*Ph.D. in Statistics and Machine Learning (joint), current GPA: 4.0/4.0*

*Aug 2018 -*

Advisors: Alexandra Chouldechova and Zachary Lipton

Thesis: The Role of Noise, Proxies, and Dynamics in Algorithmic Fairness

### Carnegie Mellon University

Pittsburgh, PA

*M.S. in Statistics, GPA: 4.0/4.0*

*Aug 2018 - May 2020*

### University of Freiburg

Germany

*M.S. in Mathematics*

*Oct 2015 - July 2018*

Thesis: Heuristic Solvers for Edge Clique Cover Graph Problems Based on Deep Neural Networks

### University of Freiburg

Germany

*B.S. in Economics*

*Oct 2013 - Sept 2017*

Thesis: The Role of Sentiment and Cultural Differences in the Communication Process of e-Negotiations

### University of Freiburg

Germany

*B.S. in Mathematics*

*Oct 2012 - Sept 2015*

Thesis: The  $p$ -adic Logarithm and Brumer's  $p$ -adic Version of Baker's Theorem

## SELECTED PUBLICATIONS

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Working papers.....

- Akpinar, N.-J., Lipton, Z., Chouldechova, A. (2023) *Non-universal data: The impact of unobserved features missingness on algorithmic fairness*. Under review.
- Akpinar, N.-J., Nagireddy, M., Stapelton, L., Cheng, H.-F., Zhu, H., Wu, S. and Heidari, H. (2022) *A Sandbox Tool to Bias(Stress)-Test Fairness Algorithms*. Under review, Preprint: <https://arxiv.org/abs/2204.10233>.

## Conference.....

- **Akpinar, N.-J.**, DiCiccio, C., Nandy, P. and Basu, K. (2022) *Long-Term Dynamics of Fairness Intervention in Connection Recommender Systems*. AAAI / ACM Conference on Artificial Intelligence, Ethics, and Society (AIES 2022).
- **Akpinar, N.-J.**, De-Arteaga, M. and Chouldechova, A. (2021) *The effect of differential victim crime reporting on predictive policing systems*. Conference on Fairness, Accountability, and Transparency (FAccT 2021).
- **Akpinar, N.-J.**, Ramdas, A. and Acar, U. (2020) *Analyzing Student Strategies In Blended Courses Using Clickstream Data*. Thirteenth International Conference on Educational Data Mining (EDM 2020).
- **Akpinar, N.-J.**, Kratzwald, B. and Feuerriegel, S. (2020). *Sample Complexity Bounds for Recurrent Neural Networks with Application to Combinatorial Graph Problems*. Thirty-Fourth Conference on Artificial Intelligence (AAAI 2020) (Student Abstract).
- **Akpinar, N.-J.**, Alfano, S., Kersten, G. and Yu, B. (2017). *The Role of Sentiment and Cultural Differences in the Communication Process of e-Negotiations*. In: Group Decision and Negotiation: A Socio-Technical Perspective (GDN 2017), p.132-144.

## Workshop & Poster.....

- **Akpinar, N.-J.**, Nagireddy, M., Stapelton, L., Cheng, H.-F., Zhu, H., Wu, S. and Heidari, H. (2022) *A Sandbox Tool to Bias(Stress)-Test Fairness Algorithms*. Poster at the Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO 2022).
- **Akpinar, N.-J.\***, Leqi, Liu\*, Hadfield-Menell, Dylan and Lipton, Zachary (2022) *Counterfactual Metrics for Auditing Black-Box Recommender Systems for Ethical Concerns*. Workshop on Responsible Decision Making in Dynamic Environments. International Conference on Machine Learning (ICML 2022).

\* denotes equal contribution

## HONORS & AWARDS

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- Amazon Graduate Research Fellowship (2021)
- Invited to Doctoral Consortium: FAccT (2021), FAccT (2022), EAAMO (2022)
- AAAI best three minute student presentation award (2020)
- Research visit grant by the German National Academic Foundation (2016)
- Full study scholarship by the German National Academic Foundation (2013 - 2018)
- Economics Award by Südwestmetall (2012)
- Mathematics Award by the German Mathematical Society (2012)

## EXPERIENCE

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### LinkedIn Corporation

*Artificial Intelligence - Machine Learning Engineering Intern*

**Sunnyvale, CA**

*May 2021 - Aug 2021*

- Research on long-term dynamics of fairness enhancement in two-sided marketplace settings.
- Manager: Sakshi Jain (Responsible AI team)

### LinkedIn Corporation

*Fairness and Privacy Research Engineering Intern*

**Sunnyvale, CA**

*May 2020 - Aug 2020*

- Developed methods for data anonymization and built a Named Entity Recognition machine learning pipeline.
- Manager: Ting Chen (Anti-Abuse team)

### University of Freiburg

*Research Assistant*

**Germany**

*Apr 2016 - July 2018*

- Data analysis, preparation of teaching materials and homeworks, literature reviews and editing research papers.
- Department: Information Systems Research Department

### Concordia University

**Montréal, Canada**

*Visiting Scholar*

*Sept 2016 - Nov 2016*

- Research on communication patterns in electronic negotiations.
- Faculty: Prof. Gregory Kersten (Concordia University) and Prof. Dirk Neumann (University of Freiburg)

## TEACHING AND MENTORSHIP

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Teaching.....

**Carnegie Mellon University**

**Pittsburgh, PA**

*Teaching Assistant*

*Aug 2018 - May 2020*

- Department of Statistics and Data Science: Statistical Graphics and Visualization (head TA), Text Analysis, Advanced Methods for Data Analysis, Probability Theory for Computer Scientists

**University of Freiburg**

**Germany**

*Teaching Assistant*

*Apr 2014 - Jul 2018*

- Department of Mathematics: Linear Algebra, Mathematics for Biology, Introduction to Programming
- Information Systems Research Department: Management Information Systems, Introduction to Programming

Mentorship.....

**Carnegie Mellon University & Giant Eagle**

**Pittsburgh, PA**

*Data Science Initiative Fellow*

*Jan 2020 - May 2020*

- Mentored a group of undergraduate students in corporate data science consulting project with supermarket chain Giant Eagle.

**Carnegie Mellon University & Penguin Random House**

**Pittsburgh, PA**

*Data Science Initiative Fellow*

*Aug 2019 - Dec 2019*

- Mentored a group of undergraduate students in corporate data science consulting project.

## INVITED TALKS

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- INFORMS annual meeting (Session on Advances in Responsible AI : From Theory to Applications) (2022)
- LinkedIn Responsible AI team (2022).
- AMS Sectional Meeting in Special Session on Social Change In and Through Mathematics and Education (2021).
- Guest lecture on Word Embeddings in Text Analysis class, CMU (2019).

## SELECTED PRESS

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- *Algoritmos de predicción policial: para qué se usan y por qué se ensañan con los más pobres*, El País (2021)
- *Predictive policing is still racist—whatever data it uses*, MIT Technology Review (2021)

## SERVICE

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- Reviewer:
  - JMLR 2022
  - FAccT 2022
  - Neurips 2021
  - ICML 2021, Workshop ML4Data: Automated Creation, Privacy, Bias
- Area chair:
  - ICLR 2021, Workshop Responsible AI
- Editor of the ML@CMU blog (since 2021)
- Organizer of the Fairness, Ethics, Accountability and Transparency reading group at CMU (2021)
- Board member of CMQ+, the LGBTQIA+ and allies graduate student group at CMU (2019, 2020)
- Three times elected Member of the Faculty Council, School of Mathematics and Physics, University of Freiburg (2015 - 2018)
- Elected Member of the Senate, University of Freiburg (2015)
- Member of the student council, Department of Mathematics, University of Freiburg (2013 - 2018). Includes member of the examination board and faculty appointment committees.

## PROGRAMMING

- **Languages:** Python, R,  $\LaTeX$
- **GitHub:** <https://github.com/nakpinar>

## LANGUAGES

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- **Native / Fluent:** German, English
- **Basic / Beginner:** Turkish, Spanish, French

Last Updated: February 2023