NIL-JANA AKPINAR

Ph.D. Student in Statistics and Machine Learning

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RESEARCH INTERESTS

My research interests lie in statistical methodology, machine learning in high-stakes decision settings, and fairness, accountability and transparency in machine learning.

PUBLICATIONS

- **Akpinar, N.-J.**, 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 Artifical Intelligence (AAAI 2020) (Student Abstract).
- **Akpinar, N.-J.** and Feuerriegel, S. (2017). *A Model-free Solver for Arbitrary Graph Problems: Predicting Solutions With Deep Learning*. Presentation at INFORMS annual meeting, Houston TX.
- **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.

EXPERIENCE

Fairness and Privacy Research Engineering Intern

LinkedIn Corporation, Sunnyvale CA (remote)

May 2020 - Aug 2020

Developed methods for data anonymization and built a machine learning pipeline for Named Entity Recognition.

Manager: Dr. Ting Chen (Engineering Manager, Machine Learning)

Research Assistant

Information Systems Research Department, University of Freiburg (Germany)

Apr 2016 - Jul 2018

Data analysis in R, preparation of teaching materials and homeworks, literature reviews and editing papers in LaTeX.

Research Intern

Concordia University, Montréal (Canada)

Sept 2016 - Nov 2016

Analyzed communication patterns in electronic negotiations in cooporation with Prof. Gregory Kersten (Concordia University) and Prof. Dirk Neumann (University of Freiburg).

EDUCATION

Ph.D. in Statistics and Machine Learning (joint)

Carnegie Mellon University

Aug 2018 – Aug 2023 (Expected)

Current GPA: 4.0/4.0

M.S. in Statistics

Carnegie Mellon University

Aug 2018 – May 2020

GPA: 4.0/4.0

M.S. in Mathematics

University of Freiburg, Germany

Oct 2015 - Jul 2018

Grade: 1.3/6.0 (1.0 (excellent) - 6.0 (fail))

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

B.S. in Economics

University of Freiburg, Germany

Oct 2013 - Sept 2017

Grade: 1.5/6.0 (1.0 (excellent) - 6.0 (fail))

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

B.S. in Mathematics

University of Freiburg, Germany

Oct 2012 - Sept 2015

Grade: 1.5/6.0 (1.0 (excellent) - 6.0 (fail))

Thesis: The p-adic logarithm and Brumer's p-adic version of Baker's theorem (German)

AWARDS

- Amazon Graduate Research Fellow (2021)
- AAAI best three minute student presentation award (2020)
- Research visit grant of the German National Academic Foundation (Fall 2016)
- Full study scholarship by the German National Academic Foundation (2013 - 2018)

TEACHING AND MENTORSHIP

Teaching assistant

Carnegie Mellon University

Aug 2018 - present

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

University of Freiburg

Apr 2014 - Jul 2018

- **Department of Mathematics:** Linear Algebra, Mathematics for Students of Natural Sciences, Intro to Programming in C/C++
- **Information Systems Research Department:** Management Information Systems/Intro to Programming in R

Data Science Initiative Fellow

Carnegie Mellon University and Giant Eagle

Jan 2020 - May 2020

- Mentored five undergraduate students in corporate data science consulting project with supermarket chain Giant Eagle.
- **Methods:** Feature engineering, logistic regression, random forests

Carnegie Mellon University and Penguin Random House

Aug 2019 - Dec 2019

- Advised four undergraduate students on a corporate consulting project with the book publisher Penguin Random House.
- **Methods:** Generalized additive models, clustering, logistic regression, random forests

PH.D. COURSEWORK

Graduate Coursework

Carnegie Mellon University

Aug 2018 - present

- Fairness, Explainability and Accountability in Machine Learning, Hoda Heidari, 10-712 (audit)
- Foundations of Causal Inference & Modern Causal Inference, Edward Kennedy, 36-432/432
- Advanced Introduction to Machine Learning, Nihar Shah, 10-715
- Advanced Statistical Theory II, Alessandro Rinaldo, 36-710
- Advanced Statistical Theory I, Alessandro Rinaldo, 36-709
- Statistical Machine Learning, Larry Wasserman, 36-708
- Advanced Data Analysis, Valerie Ventura, 36-757
- Statistical Computing, Christopher Genovese and Alexander Reinhardt, 36-750
- Intermediate Statistics, Sivaraman Balakrishnan, 36-705
- Regression Analysis, Valerie Ventura, 36-707

SKILLS

Coding

Python, R, Git, LaTeX
Bash, C++, SQL

Natural Languages

German (native), English
Spanish, Turkish, French

SELECTED SERVICE

- Area chair for ICLR 2021 workshop
- Organizer of the Fairness, Ethics, Accountability and Transparency reading group at CMU (since 2021)
- Editor of the CMU ML blog (since 2021)
- Board member of CMQ+, the LGBTQIA+ and allies graduate student group at CMU (2019-2020)
- 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.

REFERENCES

Prof. Alexandra Chouldechova
Estella Loomis McCandless Assistant Professor of Statistics and Public Policy
@ Carnegie Mellon University
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Prof. Zachary Lipton
Assistant Professor in Tepper School of Business and Machine Learning Department
@ Carnegie Mellon University
zlipton@andrew.cmu.edu

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