

Max Springer

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Department of Mathematics
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Research Interests Algorithmic Game Theory, Auction and Mechanism Design,
Fair Allocation, Combinatorics, Machine Learning

Education **University of Maryland** College Park, MD
PhD in Applied Mathematics August 2020 – Present
Advisor: Professor MohammadTaghi Hajiaghayi

Cornell University Ithaca, NY
BA in Mathematics, concentration in Biology August 2015 – May 2019
Minors in Biological Sciences & Cognitive Science

Accepted Publications **Online Algorithms for the Santa Claus Problem**
MohammadTaghi Hajiaghayi, MohammadReza Khani, Debmalya Panigrahi
and Max Springer*
36th Conference on Neural Information Processing Systems - December 2022

**A Machine Learning Approach for Predicting Impaired
Consciousness in Absence Epilepsy**
Max Springer, Aya Khalaf, ... and Hal Blumenfeld
Annals of Clinical and Translational Neurology, July '22

**The Pulse: Transient fMRI Signal Increases in Subcortical Arousal
Systems During Transitions in Attention**
Rong Li, Jun Hwan Ryu, Peter Vincent, Max Springer, ... and Hal Blumenfeld
NeuroImage, May '21

Submitted Papers **A Nash Equilibrium Approach to Missing Data Imputation**
(Available upon request) Kiarash Banihashem, MohammadTaghi Hajiaghayi and Max Springer *
37th AAAI Conference on Artificial Intelligence - February 2023

Optimal Sparse Recovery Using Decision Stumps
Kiarash Banihashem, MohammadTaghi Hajiaghayi and Max Springer*
37th AAAI Conference on Artificial Intelligence - February 2023

In Preparation **Analysis of a Learning Based Algorithm for Budget Pacing**
MohammadTaghi Hajiaghayi and Max Springer* ([arXiv](#))

* authors appear in alphabetical order

Almost Envy-Free Allocations of Indivisible Goods and Chores with Entitlements

MohammadTaghi Hajiaghayi, Max Springer and Hadi Yami*

Validation of a New Model for Estimating Insulin Sensitivity and Beta-Cell Function from Oral Glucose Tolerance Tests

Stephanie Cheung, Max Springer, Joon Ha and Arthur Sherman

Presentations

EEG and Machine Learning in Prediction of Impaired Responses to Visual Stimuli During Interictal Epileptiform Discharges

75th American Epilepsy Society Meeting - December 2021

Analysis of a Learning Based Algorithm for Budget Pacing

Facebook Operations Research Workshop - October 2021

A Machine Learning Approach for Classification of Spike-Wave Discharges in Absence Epilepsy

74th American Epilepsy Society Meeting - December 2020

Driving Safety in Patients with Generalized SWD but no Clinical Seizures: Evaluation with a Realistic Driving Simulator

73rd American Epilepsy Society Meeting - December 2019

Honors and Awards

Nokia Bell Lab's Outstanding Innovation Award Summer 2022

Recipient of [Aziz / Osborn Gold Medal in Teaching Excellence](#) 2021 - 2022

Recipient of [NSF Graduate Research Fellowship \(NSF GRFP\)](#) March 2022

Recipient of University of Maryland [Dean's Fellowship](#) August 2020

Research Experience

AI Research Lab Intern May 2022 – Present

Nokia Bell Labs

Advisor: Dr. Matthew Andrews

Research focuses on computer vision for automation of industrial monitoring.

Laboratory of Biological Modeling May 2021 – Present

National Institutes of Diabetes and Digestive Kidney Diseases (NIDDK)

Advisor: Dr. Arthur Sherman

Research focuses on analysis of dynamical systems model of Type 2 Diabetes.

Hajiaghayi Research Group December 2020 – Present

University of Maryland (College Park), Department of Computer Science

Advisor: Professor MohammadTaghi Hajiaghayi

Research focuses on fair division problems and approximate algorithms.

Blumenfeld Lab

May 2019 – August 2020

Yale University School of Medicine, Department of Neurology

Advisor: Dr. Hal Blumenfeld

Formulated machine learning classification algorithm for epileptiform discharges from large-scale set of scalp EEG data.

Strogatz Research Group

January 2019 – May 2019

Cornell University, Department of Mathematics

Advisor: Professor Steven Strogatz

Research focused on evolutionary game theory and dynamic modeling of bacterial resistance.

Integrative Cancer Dynamics Unit

May 2018 – December 2018

National Cancer Institute, National Institutes of Health

Advisor: Dr. Orit Lavi

Worked on dynamical systems model of cell cycle and tumorigenesis.

Computational Physiology Laboratory

January 2017 – January 2018

Cornell University, Department of Neurobiology and Behavior

Advisor: Professor Christiane Linster

Investigated the physiological effects and behavioral role of serotonin within the rodent olfactory bulb.

Teaching experience

Graduate Teaching Assistant (UMD)

Fall 2022

DATA/MSML 602: Principles of Data Science

Graduate Teaching Assistant (UMD)

Fall 2021

MATH 140: Calculus I

Held twice weekly recitations for topics covered in lecture. Course topics: Limits, continuity, derivatives and applications of the derivative, integration, etc...

Average student rating: 5/5.

Graduate Teaching Assistant (UMD)

Spring 2021

MATH 141: Calculus II

Held twice weekly recitations for topics covered in lecture. Course topics: techniques of integration, differential functions, sequences & series, etc...

Average student rating: 4.5/5.

Graduate Teaching Assistant (UMD)

Fall 2020

MATH 135: Mathematics for Life Sciences

Held twice weekly recitations for topics covered in lecture. Course topics: descriptive statistics, probability, discrete time modeling.

Average student rating: 5/5.

Services

External Reviewer

Conferences: ESA '21, ITCS '22, AAAI '22, AISTATS '22, ICML '22, NIPS '22

Skills

Programming

Proficient in: MATLAB, Python, Java, R.

Languages: English (native), German (advanced), Italian (limited)