# San Gultekin

CONTACT
INFORMATION

*E-mail:* san.gultekin@gmail.com
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RESEARCH
INTERESTS

Signal processing, time series analysis, machine learning.

EDUCATION

**Columbia University**, New York, NY, US — **Sept. 2013 - May 2019**
**Ph.D.** in *Department of Electrical Engineering*
- GPA: 4.06/4.00
- Advisor: Prof. John Paisley
- Thesis Title: Dynamic Machine Learning with Least Square Objectives

**Columbia University**, New York, NY, US — **Sept. 2013 - June 2015**
**M.Phil.** in *Department of Electrical Engineering*
- GPA: 4.06/4.00

**Bilkent University**, Bilkent, Ankara, Turkey — **Sept. 2011 - July 2013**
**M.S.** in *Department of Electrical and Electronics Engineering*
- GPA: 3.96/4.00
- Advisor: Prof. Sinan Gezici
- Thesis Title: Noise-Enhanced Detection in Restricted Neyman-Pearson Framework

**Bilkent University**, Bilkent, Ankara, Turkey — **Sept. 2007 - June 2011**
**B.S. with High Honors** in *Department of Electrical and Electronics Engineering*
- GPA: 3.92/4.00

PROFESSIONAL
EXPERIENCE

**Yahoo! / Verizon Media**, Sunnyvale, CA, US
**Research Scientist** — **July 2019 - Present**
Focus on various aspects of the Demand Side Platform (DSP) for advertising: developing various machine learning models for click/conversion prediction, first and second price ad auctions, metric selection and evaluation.

**Amazon A9**, Palo Alto, CA, US
**Machine Learning Intern** — **May 2018 - August 2018**
Developed optimization methods for ad click prediction and auction problem; conducted analysis on Amazon's online ad data; showing significant improvement compared to the current production model.

**Yahoo! Research**, Sunnyvale, CA, US
**Machine Learning Intern** — **May 2017 - August 2017**
Designed and implemented a new ranking algorithm which is suitable for cost-sensitive/imbalanced learning problems. The algorithm efficiently scales to very large datasets and gives improved AUC scores compared to existing benchmarks on Yahoo data, for ad click prediction task.

**Goldman Sachs**, New York, NY, US
**Summer Associate** — **May 2015 - August 2015**
Worked on a variety of data analysis and pattern classification tasks—applying cutting-edge machine learning methods—on large scale trading data.

**Columbia University**, New York, NY, US — **Sept. 2013 - Present**
**Research & Teaching Assistant** in *Department of Electrical Engineering*
Extensive experience in developing novel machine learning algorithms on a variety of real-word datasets, and publishing papers.

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| HONORS & AWARDS | <ul><li>Columbia University Edwin H. Armstrong Ph.D. Fellowship</li><li>TUBITAK M.S. Fellowship (*Ranked $12^{th}$ in Turkey*)</li><li>Bilkent University Graduate Scholarship</li><li>Bilkent University Outstanding Undergraduate Scholarship</li><li>Columbia University: Special A+ grade from two courses.</li><li>Bilkent University: High Honors Student title, one of the highest graduation GPAs, Top 10 Ranking ($7^{th}$ place) among 143 students in the undergraduate program, and special A+ grade from two courses.</li><li>Top 1000 Ranking ($788^{th}$ place) by quantitative score in the nationwide graduate school examination (ALES) among 249,472 candidates.</li></ul> |

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| PUBLICATIONS | <ul><li><u>S. Gultekin</u>, Hao He, Brendan Kitts, Aaron Flores, and John Paisley, "Nonlinear Kalman Filtering with Energy Minimization", *under review*.</li><li>Wei Zhang, Brendan Kitts, Yanjun Han, Zhengyuan Zhou, Tingyu Mao, Hao He, Shengjun Pan, Aaron Flores, <u>S. Gultekin</u>, Tsachy Weissman, "MEOW: A Space-Efficient Nonparametric Bid Shading Algorithm," *Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery & Data Mining (KDD), 2021*.</li><li>Tian Zhou, Hao He, Shengjun Pan, Niklas Karlsson, Bharatbhushan Shetty, Brendan Kitts, Djordje Gligorijevic, <u>S. Gultekin</u>, Tingyu Mao, Junwei Pan, Jianlong Zhang, and Aaron Flores, "An Efficient Deep Distribution Network for Bid Shading in First-Price Auctions," *Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery & Data Mining (KDD), 2021*.</li><li><u>S. Gultekin</u> and J. Paisley, "Risk Bounds for Low Cost Bipartite Ranking," *Conference on Uncertainty in Artificial Intelligence (UAI), 2020*.</li><li><u>S. Gultekin</u>, A. Saha, A. Ratnaparkhi, and J. Paisley, "MBA: Mini-Batch AUC Optimization," *IEEE Transactions on Neural Networks and Learning Systems, accepted in 2020*.</li><li><u>S. Gultekin</u> and J. Paisley, "Online Forecasting Matrix Factorization," *IEEE Transactions on Signal Processing*, vol. 67, no. 5, pp. 1223-1236, 2019.</li><li><u>S. Gultekin</u>, A. Zhang, and J. Paisley, "Asymptotic Simulated Annealing for Variational Inference," *IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, UAE, 2018.</li><li><u>S. Gultekin</u> and J. Paisley, "Nonlinear Kalman Filtering with Divergence Minimization," *IEEE Transactions on Signal Processing*, vol. 65, no. 23, pp. 6319-6331, 2017.</li><li>A. Zhang, <u>S. Gultekin</u>, and J. Paisley. "Stochastic variational inference for the HDP-HMM," *International Conference on Artificial Intelligence and Statistics (AISTATS)*, Cadiz, Spain, 2016.</li><li><u>S. Gultekin</u> and J. Paisley, "Variational Inference for Dynamic Matrix Factorization," *NIPS Workshop on Advances in Variational Inference*, Montreal, Canada, 2014.</li><li>M. Rudolph, <u>S. Gultekin</u>, J. Paisley, S. F. Chang, "Probabilistic Canonical Tensor Decomposition for Predicting User Preference," *NIPS Workshop on Personalization: Applications and Methods*, Montreal, Canada, 2014.</li><li><u>S. Gultekin</u> and J. Paisley, "A Collaborative Kalman Filter for Time-Evolving Dyadic Processes," *IEEE International Conference on Data Mining (ICDM)*, Shenzhen, China, 2014.</li><li>S. Bayram, <u>S. Gultekin</u>, and S. Gezici, "Noise Enhanced Hypothesis Testing According to Restricted Neyman-Pearson Criterion," *Digital Signal Processing*, 2014.</li><li>S. Bayram, <u>S. Gultekin</u>, and S. Gezici, "Noise Enhanced Detection in Restricted Neyman-Pearson Framework," *The 13th IEEE International Workshop on Signal Processing Advances for Wireless Communications (SPAWC)*, Cesme, Turkey, 2012.</li><li><u>S. Gultekin</u>, "Dynamic Machine Learning with Least Square Objectives," **Ph.D. Dissertation**, Department of Electrical Engineering, Columbia University, May 2019.</li><li><u>S. Gultekin</u>, "Noise Enhanced Detection in Restricted Neyman-Pearson Framework," **M.S. Thesis**, Department of Electrical and Electronics Engineering, Bilkent University, July 2013.</li></ul> |

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| COMPUTER SKILLS | <ul><li>Frequent use: Python (with Numpy/Scipy and Tensorflow), Matlab</li><li>Familiar with: Java, Hadoop, Hive, R, C++</li><li>LaTeX, Office Suite, HTML</li></ul> |

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| RELATED COURSEWORK | <ul><li>Machine Learning, Advanced Machine Learning, Convex Optimization, Computational Statistics, Detection and Estimation Theory, Random Processes, Advanced Signal Processing, Wavelet Theory, Nonlinear Systems, Power System Analysis, Digital Communications Theory, Wireless Communications, Communication Network Analysis, Internet Architecture and Protocols, Digital</li></ul> |

Signal Processing, Telecommunications I-II, Computer Networks.