

Hari Bandi

CONTACT INFORMATION

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EDUCATION

Massachusetts Institute of Technology

2016-2021

Ph.D. in Operations Research, June 2021

Thesis: Improving Efficiency and Fairness in Machine Learning

Advisor: Dimitris Bertsimas

Indian Institute of Technology Kharagpur

2011-2016

Integrated Masters in Mathematics and Computer Science

Minor in Economics

RESEARCH EXPERTISE

Generative AI, Machine Learning, Deep Learning, Robust Optimization, Large-scale Optimization

PROFESSIONAL EXPERIENCE

Nference

Senior AI Scientist

August 2020 - Current

- Designed and implemented a chat-based copilot, utilizing open-source LLMs and integrating with EHR systems for efficient parsing and evaluating various disease risk prediction models.
- Developed multimodal deep-learning models integrating ECG signals, clinical notes, and structured EHR data, enabling accurate prediction of heart conditions. Achieved FDA Breakthrough Device Designation for two algorithms, demonstrating their impact and potential in improving patient outcomes.
- Led the implementation of few-shot entity extraction methods in clinical dashboards, enabling precise determination of immunosuppression status from unstructured clinical notes.
- Successfully collaborated with cross-functional teams, including clinicians, engineers, and regulatory affairs, to ensure seamless integration of data science solutions into clinical workflows.

Nference

Research Scientist Intern

April 2020 - July 2020

- Developed an algorithm to analyze immunization records from Mayo Clinic and other academic medical centers to identify (existing) vaccines that have protective effect against SARS-CoV-2 infection in the early days of the COVID-19 pandemic (April 2020).
- Used state-of-the-art modeling techniques, including BERT-based transfer learning, to achieve highly accurate and efficient entity extraction and sentiment analysis to identify symptoms and immunization records from unstructured clinical notes.
- Identified existing vaccines that had a protective effect against SARS-CoV-2 infection. Our findings were published in Nature Scientific Reports and received extensive media coverage in prominent outlets such as The New York Times, The Washington Post, and the CNN.

Massachusetts Institute of Technology

Graduate Research Assistant

August 2017 - July 2020

- Conducted research with doctoral advisor (Prof. Dimitris Bertsimas) to improve efficiency and robustness of ML algorithms through an optimization perspective with applications in Healthcare and Finance.
- Resulting in six first-author publications in the Journal of Machine Learning, Nature, Operations Research, INFORMS Journal on Optimization and American Physical Review.
- Mentored over 15 Masters students over four years with their capstone projects in collaboration with industry partners including Meta, Uber, AirBnB, Palantir, IBM, Walmart and McKinsey,

Google

- Worked in Google Assistant team to model dialogue between the Google voice-assistant and a user.
- Developed algorithms to extract topics and intent from an utterance in a conversation, and generate coherent sentences in response. Built state-of-the-art Recurrent Neural Network models for this task.

SELECTED
PUBLICATIONS**The Price of Diversity**<https://arxiv.org/abs/2107.03900>[Hari Bandi](#) and Dimitris Bertsimas**Severe acute infection and chronic pulmonary disease are risk factors for developing post-COVID-19 conditions**<https://pubmed.ncbi.nlm.nih.gov/36523407/>[Hari Bandi](#), et al.**Analysis of the effectiveness of the Ad26.COV2.S adenoviral vector vaccine for preventing COVID-19** JAMA 2022[Hari Bandi](#), et al.**Optimizing Influenza Vaccine Composition: From Predictions to Prescriptions**

JMLR 2020

[Hari Bandi](#) and Dimitris Bertsimas**Learning a Mixture of Gaussians via Mixed Integer Optimization** INFORMS Journal on Optimization 2018.[Hari Bandi](#), Dimitris Bertsimas and Rahul Mazumder**An Algorithmic Perspective on Regression Function Estimation with Smoothness and Shape Constraints**[Hari Bandi](#) and Rahul MazumderHONORS AND
AWARDS

Awarded INFORMS Pierskalla Best Paper Award.

Awarded INFORMS Undergraduate OR prize.

Award for Institute Silver medal at IIT Kharagpur.

Award for Academic Excellence at IIT Kharagpur.

Award for KVPY Fellowship from Department of Science and Technology, Govt. of India.

Award for INSPIRE Scholarship from Department of Science and Technology, Govt. of India.

TECHNICAL
SKILLS*Languages:* Python, Julia, C++, R and SQL.*Technologies:* PyTorch, TensorFlow, Hadoop, Docker and Optimization solvers (Gurobi, Mosek, CPLEX).