Seehanah Tang

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Education

Massachusetts Institute of Technology **Graduating in May 2030**
Ph.D in Operations Research
Brown University **May 2025**
Sc.B. in Applied Math-Computer Science
GPA: 4.00/4.00 (Magna Cum Laude), *Honors*

Relevant Courses

Mathematical Programming (15.081)
Deep Learning and Generative AI (15.099)
Theory of Computation (BMEVISZA 081)
Numerical Optimization (APMA 1160)
Statistical Inference (APMA 1655)
Real Analysis (MATH 1630/40)
Machine Learning under an Optimization Len (15.095)
Machine Learning (CSCI 1420)
Graph Theory (BMEVISZA 086)
Probabilistic & Deterministic models (APMA 1200/10)
Partial Difference Equations (APMA 0360)
Design and Analysis of Algorithms (CSCI 1570)

Research and Industry Experience

MIT Operations Research Center **Sept 2025 - Present**
Graduate Research Assistant for Prof. Dimitris Bertsimas *Cambridge, MA*

- Led team to predict positivity of blood culture using multimodal artificial intelligence in collaborate with Hartford Healthcare, integrating clinical and laboratory data and doctor notes to reduce number of blood cultures ordered unnecessarily
- Developed interpretable and sparse supervised learning models for early disease detection in UK Biobank, using a backbone formulation that scales to ultra–high-dimensional multi-omics data by solving many structured subproblems to identify a small, relevant feature set
- Built deep learning pipelines to classify trauma grade in liver CT scans using 3D ResNet architectures combined with generative data augmentation using VAEs

Brown University School of Public Health **Sept 2024 - May 2025**
Honors Thesis Candidate with Prof. Alice Paul *Providence, RI*

- Conducted a comparative study on risk score models, including FasterRisk and RiskCD, focusing on optimizing patient outcome predictions, and utilized machine learning techniques to categorize continuous variables for improved model performance
- Designed and executed a simulation study to evaluate computational efficiency and accuracy between the models, validated models with real-world data on tuberculosis diagnosis and treatment adherence to assess clinical applicability and model reliability

The Cigna Group **May 2024 - May 2025**
Technology Development Intern *Philadelphia, PA*

- Engineered a serverless customer service chatbot and forums app in AWS, utilizing GPT-4 and Retrieval-Augmented Generation (RAG) techniques to enable accurate responses to domain-specific queries

· Incorporated automated testing into pipeline of requester dashboard for Cigna Primary Care Providers (PCP) using Cypress Studio

MIT Sloan School of Management **Jul 2020 - Aug 2024**
Research Assistant for Prof. Dimitris Bertsimas *Cambridge, MA*

· Led the development of machine learning models using Julia and Python to predict tumor recurrence and optimize treatment strategies for cancers such as IPMN, GIST, CRLM, and soft tissue sarcoma
· Focused on creating interpretable AI models to assist in clinical decision-making, ensuring that the models provide actionable insights for personalized cancer treatments
· Co-author in three peer-reviewed publications in top-tier journals, JAMA Surgery and Lancet Oncology, advancing the application of AI in precision oncology

Benefits Science, MultiPlan **Jun - Aug 2023**
Data Science Intern *Boston, MA*

· Utilized Databricks and Spark to efficiently process and analyze medical claims data related to hypertension and chronic kidney disease (CKD), implementing data queuing and filtering techniques
· Developed classification models to assess cost-related risk scores for individuals with hypertension and CKD
· Crafted an accessible and user-friendly interface for predictive models on the company's dashboard using React framework Next.js

Publications

"Towards Better Clinical Risk Scores with AnnealScore: A Residual-Guided Simulated Annealing Algorithm"
Hannah Eglinton, **Seehanah Tang**, Tongtong Zhao, Yu Yan, Alice Paul, submitted to International Journal of Biostatistics, 2025

"Interpretable artificial intelligence to optimise use of imatinib after resection in patients with localised gastrointestinal stromal tumours: an observational cohort study"
Dimitris Bertsimas, Georgios Antonios Margonis, Suleeporn Sujichantararat, ..., **Seehanah Tang**, et al.
Lancet Oncology, 2024.

"An interpretable AI model for recurrence prediction after surgery in gastrointestinal stromal tumour: an observational cohort study"
Dimitris Bertsimas, Georgios Antonios Margonis, **Seehanah Tang**, et al.
Lancet eClinicalMedicine, 2023.

"Using Artificial Intelligence to Find the Optimal Margin Width in Hepatectomy for Colorectal Cancer Liver Metastases"
Dimitris Bertsimas, Georgios Antonios Margonis, Suleeporn Sujichantararat, ..., **Seehanah Tang**, et al.
JAMA Surgery, 2022.

Leadership and Community Engagement

APMA Connect Program **Oct 2024 - May 2025**
Program Lead *Providence, RI*

- Interviewed third-year Applied Math concentrators on their experience with the Applied Math department, gathering qualitative data regarding resources, faculty, courses, and classroom experience
- Synthesized feedback and presented to departmental leadership, highlighting opportunities for improved academic support and student engagement

Brown University Orchestra **Sept 2021 - May 2025**
First Flutist *Providence, RI*

- Performed twice every semester for the Brown University and greater Providence communities, held special programs addressing current events, and participated in composer and artist workshops
- Accompanied world-renowned violinist Itzhak Perlman and acclaimed cellist Zlatomir Fung

The Association of Women in Mathematics (AWM) **Sept 2021 - May 2023**
Secretary *Providence, RI*

- Led successful initiatives, organizing engaging panels, community events, and mentorship programs, attracting up to 100 participants and fostered the community of women in mathematics at Brown University

Teaching Experience

Brown University **Jan 2022 - May 2025**
Teaching Assistant for Partial Differential Equations, Statistical Inference, Object-Oriented Programming, Probabilistic Models, and Machine Learning

- Conducted informative conceptual and debugging office hours and led weekly lab sections, providing academic support to students
- Evaluated student performance, graded homework and exams, and updated course website material

Skills and Languages

Technologies: Proficient in Python, Java, R, JavaScript, Julia, Git; Experience with C, MatLab, SQL, Spark

Languages: Native proficiency in English, Chinese; Elementary proficiency in Spanish, Hungarian, ASL