

Avital Baral

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Education

Massachusetts Institute of Technology

Master of Engineering in Computer Science

Dec 2021 · GPA: 5.0/5.0

B.S. in Computer Science & Engineering, B.S. in Urban Planning & Policy

Jun 2020 · GPA: 4.7/5.0

- **Relevant Technical Coursework:** Data-Driven Systems & Society (G), Network & Computer Security (G), Machine Learning, Artificial Intelligence, Computer Systems Eng., Software Eng., Algorithms I & II, Probability, Discrete Math
- **Relevant Policy Coursework:** Cybersecurity Law & Policy (G), Internet Policy (G), Transportation Policy (G), Global Energy Policy, Negotiation, Transportation & Behavioral Science, Microeconomics

Work Experience

Texas Democratic Party

May — Dec 2020

Data Engineer

- Spearheaded automated generation and daily distribution of 700+ campaign status reports for political campaigns at all scales across the state, including voter and volunteer contact metrics, vote-by-mail & early vote progress. Used Python, SQL, Google Sheets, Google Data Studio & AWS deployment.
- Contributed to machine learning-based partisanship model, including feature selection and engineering and model optimization & validation, predicting political partisanship for 16 million voters statewide.
- Generated deduplicated and prioritized direct voter contact lists based on specifications from stakeholders using Python & SQL.

Bluebonnet Data

Dec 2019 — May 2020

Data Fellow, Team Lead for TX-22 Campaign

- Led a team of 3 centered on data analytics efforts for a down-ballot political campaign, overseeing projects including demographic analysis and projections, and political platform chatbot.
- Programatically created interactive maps of campaign outreach priorities and progress using Python.

ESRI Research & Development

Jun — Aug 2019

Software Engineering Intern

- Implemented correlation tool to compare 10,000+ user geographic datasets and evaluated which were most relevant to one another using a variety of correlation measures, including 40+ additional demographic variables pulled from the Census API.
- Served as a full-stack software engineer on ArcGIS Online team, completing Javascript backend and frontend tasks.

Microsoft, Inc

Jun — Aug 2018

Explore Intern, Office Core Experiences Team

- Designed & implemented code live-editing tool on the Office UI documentation website using Typescript & React to allow users to try out and modify UI components directly on the site, saving development time.

Research & Teaching

GECCO 2021 Proceedings Paper: 'Coevolutionary Modeling of Cyber Attack Patterns and Mitigations Using Public Datasets'

ACM CHIL 2020 Workshop Paper: 'Dataset Bias in Diagnostic AI systems: Guidelines for Dataset Collection and Usage'

MEng Thesis: 'Continued Measured Improvement: A New Approach to Meeting the Municipal Cybersecurity Challenge' (in progress)

Undergraduate Thesis: 'Leveling The Democratic Playing Field ? Analyzing Seattle's Democracy Vouchers Program'

Teaching Assistant: Taught 500+ students in Computer Systems Engineering, Cybersecurity for Critical Urban Infrastructure.

Skills

Programming Languages: Python (Numpy, Pandas, Scikit-learn), SQL (BigQuery, Postgres), Java, R, TypeScript, Javascript (React, Node.js, Ember), bash

Software: Git, Linux, arcGIS, QGIS, Google Cloud Platform, Tableau, Excel/Google Sheets, NGP VAN, LaTeX

Leadership, Organizing, & Awards

East Campus Dormitory Orientation Project Manager

Jan 2018 — Sept 2018

- Led 30-person project team building a 3-story wooden fort and ropes course & wooden carnival rides for MIT orientation. Obtained city building permits and managed a \$40k budget.

MIT Divest Co-Lead

Sept 2019 — June 2020

- Led campaign for fossil-fuel divestment at MIT, including strategy & escalation planning, negotiations with administrations, and campus-wide petition and public outreach.

Undergraduate Association Sustainability Committee Chair

Sept 2018 — Jun 2019

- Lead a 60+ person student government committee focused on sustainability initiatives. Projects included campus-wide reuse program, composting program & recycled fashion show.

Awards: Member of MIT Delegation to United Nations Conference on Climate Change (COP25)