Avital Baral

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Education

Massachusetts Institute of Technology
Master of Engineering in Computer Science   *Feb 2022 · 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**: Software Eng., Computer Systems Eng., Network & Computer Security (G), Machine Learning, Adv. Topics in AI (G), Data-Driven Systems & Society (G), 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

ActBlue Technical Services   **Feb 2022 - Present**
Data Engineer II
- Designed, created, deployed and documented ETL and ELT pipelines to integrate new data sources for internal and external stakeholders using AWS, Fivetran, Kubernetes, & Datadog. Created and curated dbt SQL models surfaced in Looker.
- Majorly contributed to design, implementation, testing, and infrastructure of a GraphQL-based data analytics API to efficiently query $10B+ of transaction data.
- Mentored new engineers, coordinated org-wide knowledge-sharing through tech talks and documentation pushes, collaborated with product managers in roadmapping and writing project plans, participated in data governance efforts.

Texas Democratic Party / Joe Biden for President   **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.

Bluebonnet Data   **Dec 2019 — May 2020**
Data Fellow & Team Lead
- Led a team of 3 centered on data analytics efforts for a down-ballot political campaign, overseeing ideation, implementation, and delivery of projects including demographic analysis and projections and interactive maps of campaign outreach progress .

ESRI Research & Development   **Jun — Aug 2019**
Software Engineering Intern
- Implemented correlation tool to compare 10,000+ user geospatial 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.

Microsoft, Inc   **Summers 2015, 2016, 2018**
Intern, Office Core Experiences Team, Node.js Tools for Visual Studio
- 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.
- Developed & shipped to production Snippets and Interactive Window developer tools within Node.js for Visual Studio.

Skills

Programming Languages: Python (numpy, pandas/geopandas, sk-learn), SQL, Java, TypeScript, Javascript (react, node.js)
Tools: Git, Linux, AWS, GCP, Docker, Kubernetes, Datadog, Terraform, dbt, arcGIS, QGIS, Excel/Google Sheets

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'
Undergraduate Thesis: 'Leveling The Democratic Playing Field? Analyzing Seattle's Democracy Vouchers Program'
Teaching Assistant: Taught 1000+ students in Information Policy (graduate-level), Computer Systems Engineering, Intro to CS

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.

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), Student Rep on EECS Undergraduate Advisory Group, Student Rep on DUSP Council, Voting Member of Institute Committee on Curricula