# Gati Aher

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## Education

**Olin College of Engineering** – Needham, MA *Dec 2023*
*Bachelor of Science in Engineering: Computing* *GPA: 4.0*

- Recipient of 4-year, 50% Franklin W. Olin College Merit Scholarship
- Massachusetts Space Grant Undergraduate Research Award – Fall 2021
- **Relevant Courses:** Data Structures and Algorithms; Software Systems; Discrete Mathematics Quantitative Engineering Analysis; Neurotechnology: Brains and Machines
- **Skills:** Python, Java, Bash, MATLAB, C, React.js, Node.js, D3.js, HTML/CSS, SQL, LaTeX, AWS, Docker, ROS, OpenCV, Statistics, Machine Learning, Deep Learning

## Experience

**Researcher (ML & Data Science Lead, FCC Team), Olin Satellite + Spectrum Technology & Policy)** *Fall 2021 – Present*

- Apply statistics and modeling to FCC Spectrum Auctions to determine factors of 5G spectrum value
- Automate process of web-scraping and document NER extraction to create FCC license database

**Researcher (Data Science Lead), Olin Microbiology and Bioinformatics Research Lab** *Spring 2021 – Present*

- Apply correlation network analysis on microbe communities to infer interactions and behavior modes
- Use statistics and effective data visualizations to gain insights into community composition
- Perform Fourier analysis to identify and measure periodic patterns in bacteria S-layer images

**Intern (R&D and ML Teams), Indico Data Solutions** *Summer 2021*

- Implemented React tool allow customers to draw and correct on-document invoice text groupings
- Used rapid prototyping and user-testing feedback to inform design
- Programmed and trained neural network object-detection system to classify handwriting and checkboxes using Faster R-CNN algorithm and Detectron-v2 framework
- Applied techniques for alternate pre-training, multi-label formulation, and small object detection

**Intern (NLP and ML-DevOps Teams), The MITRE Corporation** *Fall 2020*

- Revived and adapted academic code to generate paraphrases using bilingual pivoting technique *Summer 2019*
- Run time experiments to determine Hadoop configuration for resource-intensive computation
- Applied logistic regression with feature engineering for classification on imbalanced dataset
- Built Docker and gRPC automated pipeline for evaluating vulnerabilities in AI models

**Teaching Assistant (Software Design in Python), Olin College of Engineering** *Fall 2020*

- Taught Object-Oriented Programming System, Design Patterns, debugging, and programming concepts during weekly office hours. Graded projects and assignments.

**Intern (Backend Team), Cumulus Digital Systems** *Summer 2020*

- Built AWS SNS, Lambda, and DynamoDB webhooks system to give clients real-time data updates
- Implemented secure REST API + Swagger UI microservice to let clients interface with the platform
- Developed system of API response and request validation and automated documentation generation

## Projects

**Full-Stack Web Application for Local Pool Management (**Website: https://www.lagaannfl.com**)** *Fall 2020*

- Built secure user and admin management for football pool picks, used by 40+ users
- Designed and implemented scoring engine to validate user pool picks and compute score, and React UI to handle team selections and leaderboard displays
- Built with React, TypeScript, Auth0, Material-UI, Node.js, SQLite, PM2, Nginx. Deployed on AWS EC2 / DigitalOcean Droplet

**Text Analysis and Data Visualization of Xkcd Transcripts** (Website: *https://xkcd-data.herokuapp.com*) *Spring 2020*

- Explored methods for lemmatization, POS tagging, TF-IDF, truncated SVD, cosine-similarity
- Built data visualization tool using scikit-learn, nltk, SpaCy, Flask, D3.js, and bootstrap.