# Gati Aher

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GatiAher

## EDUCATION

**Olin College of Engineering • Needham, MA**
*B.S. Engineering with Computing | GPA 4.0 | Dec 2023*
- Recipient of Four-Year, Half-Tuition Merit Scholarship
- **Relevant Coursework:** Software Design, Quantitative Engineering Analysis, Modeling and Simulation of the Physical World
- **Activities:** Data Science Club, Public Interest Club, Spatial Computing Lab Researcher, International Aerial Robotics Competition

## SKILLS

**Languages:** Python, Java, Javascript, HTML/CSS, MatLab, Bash

**Frameworks:** Amazon Web Services, Serverless Architecture, Docker, React.js, D3.js, Node.js, ROS, OpenCV

**Other:** Design Patterns, OOP, Git, CAD Software ( Onshape | SolidWorks | Creo Parametric )

## WORK EXPERIENCE

**The MITRE Corporation • Bedford, MA**
*The MITRE Corporation manages federally funded research and development centers supporting several U.S. government agencies*
*Software Engineering Intern, Sep 2020 – Present*
- Discovering new methods to exploit vulnerabilities in machine learning-based natural language processing systems such as information retrieval, machine translation, and unknown author characterization
- Revived research code transitioned from academic lab, debugged it in a new environment, incorporated newer software packages
- Augmented dataset by performing word alignment and cleaning of 900 million segments of parallel text, implemented a method for scrubbing poorly aligned translation segments out of the input data, and ran timing experiments to determine which hardware was needed for computation of resulting resource

*Software Engineering Intern, Jun 2019 – Aug 2019*
- Worked on IARPA Intelligence program to create an automated pipeline for evaluating privacy vulnerabilities in AI models
- Defined general gRPC interface for containerized attacks and defenses to be swapped easily during benchmark comparison tests
- Successfully improved the flexibility and speed of sending batches of images over gRPC from 17 minutes to 17 seconds

**Olin College of Engineering • Needham, MA**
*Teaching Assistant for Software Design Class in Python, Sep 2020 – Present*
- Explain Design Patterns, OOPs, debugging, and programming concepts during TA office hours; grade projects and assignments

**Cumulus Digital Systems • Cambridge, MA**
*Cumulus Digital Systems is an IoT startup that delivers real time, paperless workflow management in maintenance and construction*
*Software Engineering Intern, May 2020 – Aug 2020*
- Created webhooks system with AWS SNS, Lambda and DynamoDB to let clients access real-time updates on their data
- Developed secure REST API + Swagger UI microservice that allows clients to directly interface with Cumulus's system
- Improved REST API's maintainability by implementing response and request validation and automated documentation generation
- Implemented two React-Native features that decreased number of clicks required to make tool selections and see work summary

## PROJECTS

**Full-Stack React Web Application for Football Pool Management** *Sep 2020 – Present • https://www.lagaannfl.com/nfl_games*
- Deployed on AWS EC2; Build with React.js, TypeScript, Material-UI, Express.js, SQL, Auth0, PM2, Nginx
- Built scoring engine to validate user pool picks and compute score; React UI to handle team selections and leaderboard displays
- Used by 40 users to submit pool selections weekly

**Text Analysis and Data Visualization of Xkcd Transcripts** *Mar 2020 – May 2020 • https://xkcd-data.herokuapp.com*
- Explored and analyzed methods for lemmatization, stemming, POS tagging, TF-IDF, truncated SVD, cosine-similarity, clustering
- Built data visualization tool using scikit-learn, nltk, SpaCy, Flask, D3.js, and bootstrap

## ACHIEVEMENTS

**Armed Forces Communication & Electronics Association (AFCEA)** *Jun 2019*
- Chosen as highest ranking out of the top STEM students from 80 high schools in the Lexington-Concord area
- Received AFCEA scholarship, the Gilbert A. Barrett Award scholarship, and paid internship with the MITRE Corporation

**Presented At**
- TedxYouth | International Society of Technology in Education (ISTE) | Massachusetts Computer Using Educators (MassCUE) | Greater Boston Research Opportunities for Women (GROW) Technology Conferences

**Valedictorian of Burlington Highschool** *Jun 2019*