MICHAEL LIANG

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OBJECTIVE

Seeking a software engineering role where I can leverage my machine learning expertise and multidisciplinary background to enhance healthcare solutions.

EDUCATION

Georgia Institute of Technology **GPA: 4.00/4.00** **Atlanta, GA**
Master of Science (MS) in Computer Science - Machine Learning Candidate – December 2020

Massachusetts Institute of Technology **GPA: 4.71/5.00** **Cambridge, MA**
Bachelor of Science (SB) in Chemical and Biological Engineering – June 2009

RELEVANT WORK EXPERIENCE

January 2021 – Present **Varian Medical Systems** **Atlanta, GA**

Software Engineer III – NextGen Oncology Workflow Application

C#, Angular, Typescript, Jasmine, Playwright, Native Syngo

- **Feature technical owner** for a critical component of the NextGen Oncology Workflow Application, overseeing its backlog, refining requirements and acceptance criteria, and collaborating with Product Management to ensure clinical and operational alignment.
- **Mentor to new and junior engineers**, leveraging my education background to train them in best practices, technical development, and future feature ownership.
- **Implemented test-driven development (TDD) practices**, designing test data and cases upfront to validate functionality, ensure robustness, and drive high-quality feature development.
- Major **individual contributor** to the development effort, accounting for a substantial share of commits within a team of eight engineers.

Software Engineer II – Velocity Advanced Imaging

C++, C#, Python, PostgreSQL, SQLite, QT, DCMTK, Gitlab

- **Engineering lead for the Design Requirements Review Board (DRRB)**, ensuring design specifications met clinical and regulatory standards. Evaluated potential defects for customer safety, cybersecurity risks, and user experience impact.
- **Engineering lead for the Escalated Complaint Team (ECT)**, coordinating investigations and resolutions for critical product issues, mitigating risks to patient care and workflow efficiency.
- Played a crucial role in **addressing operational and leadership gaps** during the VelocityAI 4.2 release, ensuring development milestones were met and cross-functional coordination remained effective in the absence of a dedicated project manager.
- **Individual contributor for VelocityAI**, an advanced medical imaging and treatment planning software for oncology care. Enhanced deformable registration algorithms for improved precision in image alignment across 3D volumes.

May 2020 – August 2020 **Varian Medical Systems** **Atlanta, GA**

Product Management Intern – SEGINT-R

Python, SQLite, Redis, Celery, Google Protobuf, TensorFlow, Keras, PyTorch, Gitlab

- From idea to product, **designed and developed** an open-source anatomical transaction server for research clients (**ATS-R**) to prototype oncology segmentation machine learning models with Velocity AI, Varian's picture archiving and collection system (PACS).
- The server features highly-extensible and flexible framework for quick upload of trained models for non-clinical testing, with native support for TensorFlow and PyTorch models.
- Deployed to **multiple research institutions**.

July 2016 – August 2019 | Brooke High School | Boston, MA

Founding Computer Science Teacher

Java, Python, JavaScript, MATLAB, GitHub

- **Founding teacher** at Brooke High School, designing and implementing an introductory Java course for all 9th graders and a full-year AP-CSP (JavaScript) course for 10th/11th graders.
- Founded and led **The ElectroLights**, an award-winning Python-based robotics program, expanding participation to 1/8 of the entire student body.
- **Awards**: 2017 Taking Initiative Award, 2020 Extraordinary Student Achievement Award.

PROJECT PORTFOLIO

Project Portfolio: https://mliang1987.github.io/portfolio
Personal GitHub: https://github.com/mliang1987

Crop Classification with Neural Networks May 2020

Developed 95%-accurate *neural network classifier* for crop and weed plant images to facilitate spot-application of pesticides. Prior to classification using ImageNet transfer learning on the Xception architecture, input images are processed via unsupervised segmentation.

Machine Learning with *k*-Means Clustering and Expectation Maximization November 2019

Compared vectorized implementation of *k-means clustering* and *expectation maximization* to image compression and point cloud data segmentation.

Using Machine Learning for Stock Trading November 2019

Investigated using a *random forest* (bootstrapped ensemble of random tree learners) for deciding stock holdings during a given time window, using trading signals as features. Optimized to avoid overfitting w.r.t. leaf-size and ensemble-size.

OTHER WORK EXPERIENCE

January 2021 – Present | Georgia Institute of Technology | Atlanta, GA

Instructional Associate / Lead Teaching Assistant

- **Lead TA** for a graduate-level course, overseeing a **team of 10 TAs** to ensure smooth course operations.
- Managed schedules, coordinated assignments, and streamlined workflows to optimize TA effectiveness.
- Set up infrastructure and support systems to enhance TA collaboration and efficiency.
- Acted as a liaison between faculty and TAs, ensuring alignment on course objectives and instructional needs.

January 2020 – January 2021 | Georgia Institute of Technology | Atlanta, GA

Graduate Academic Coach

- Coached undergraduate students looking to excel while attending GATech. Provided clear and concise feedback and action steps to help students maximized academic outcomes.

September 2015 – June 2016 | The English High School | Boston, MA

High School Teacher (9^{th}-12^{th} Grade) – Physics

August 2014 – August 2015 | Boston Debate League | Boston, MA

Program Manager for After-School Debate Programs

- Supported and trained 33 teacher-coaches from 9 different high schools in Boston Public Schools in managing and training students for after-school competitive academic policy debate on local and national circuits.
- Supported programming (logistics, training, and mentorship structures) that allowed 400 students in 9 BPS high schools to participate in tournaments throughout the city and region.

July 2012 – August 2014 | Massachusetts Institute of Technology | Cambridge, MA

Lead Teacher – Teaching Opportunities in Physical Science at the Research Laboratory for Electronics

September 2009 – June 2014 | Excel High School | Boston, MA

High School Teacher (9^{th}-12^{th} Grade) – Physics, AP Computer Science A