ADIT SHAH

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SUMMARY — High school student passionate about driving positive societal change using computer science, machine learning, and robotics. My current areas of interest include multi-agent systems and the applications of machine learning to medicine.

SKILLS — Programming: Python, Java, Kotlin, Julia, MATLAB, HTML/CSS, C/C++
Machine Learning: Neural Networks, Decision Trees, Clustering, TensorFlow, Keras, YOLO, Object detection
Robotics: ROS, gRPC, Gazebo, LIDAR, NVIDIA Jetson TX2, OpenCV

RESEARCH EXPERIENCE

May 2020 - Present — **Ashoka University**, Haryana, India
Research Assistant
(working with Prof. Debayan Gupta)
- Developing a synthetic population simulation of India (1.3 billion people) to model the spread of COVID-19
- Using Machine Learning to determine chemical properties of compounds with applications in drug development

June 2019 - August 2019 — **Research Mentorship Program**, University of California, Santa Barbara, CA
Improving the Efficiency and Scalability of Multi-Drone Coverage Systems with Decentralized Control
(mentored by Bryce Ferguson, PhD Student at UCSB)
- One of 75 high-school students from around the world chosen for graduate-level research
- Developed and simulated decentralized algorithms in MATLAB for multi-drone coverage systems for applications in mapping, disaster prevention and assessment, and environmental monitoring
- Authored an academic research paper, delivered a symposium talk, and participated in a poster session

PROJECT EXPERIENCE

June 2020 - Present — **Virufy**, Stanford COVID-19 Response Lab
Software Developer and Machine Learning Engineer
- Using data from COVID-19 patients, including their cough, symptoms, and demographics, to create Machine Learning models to aid in the diagnosis of the disease
- Helping develop web app for crowdsourced data collection

October 2019 - Present — **AgentSim**
Creator
- Developed a software simulation platform to allow researchers to test the efficacy of various algorithms in a distributed multi-agent coverage system. Continuation of research at UC Santa Barbara in the summer of 2019.

March 2020 - June 2020 — **The Purple View,** Stanford COVID-19 Response Lab
Lead Developer
- Developed proof of concept for website that displays the news from all three political perspectives (left, center, and right)
- Worked with undergraduate and graduate students from Stanford, USC, and the University of Waterloo

INDUSTRY EXPERIENCE

March 2019 - April 2019 — **Positronics**, Pleasanton, CA
Software Development Intern
- Demonstrated the viability of using ROS to control the Universal Robots UR5 industrial robot arm

April 2018 - January 2019 — **Robolink** (Robotics Education Company), San Diego, CA
Software Development Intern
- Developed software for Zümi, a new CES award-winning robotics kit
- Developed Machine Learning demos and optimized these demos on the Raspberry Pi for Zümi
- Ran Robolink's San Diego Maker Faire booth, presented ML demo, and marketed products and classes

Summer 2018 & 2017 — **Avi Networks** (Software Load Balancing and Web Application Firewall), Santa Clara, CA
Software Development Intern
- Developed a Machine Learning proof of concept for WAF (Web Application Firewall) product using Neural Networks, Random Forest, and Clustering algorithms
- Developed automation software in Python and Ansible for testing the Avi Vantage Platform on Cisco CSP 2100, reducing end-to-end testing cycle on this platform from hours to minutes

COMMUNITY SERVICE

June 2020 - Present — **Tech4Everyone**
Founder
- Providing free technology tutoring for seniors and low-income individuals to order necessities, connect with family and friends, apply for jobs, and more
- Working with senior centers in the Bay Area to provide group classes on technology use and safety

March 2020 - Present — **Learn To Be**
Volunteer Tutor
- Tutoring students from low-income backgrounds in math and reading through the Learn To Be foundation

July 2019 - Present — **Tenderloin Technology Lab**, St. Anthony Foundation, San Francisco, CA
Tutor, Guest Assistant, Workshop Volunteer
- Volunteering at the Tenderloin Technology Lab, a free technology training center and computer lab located in the Tenderloin, San Francisco's poorest district, to provide vulnerable residents with basic technology skills
- Helping people in the local community apply for jobs, format resumes, and provide general technical support
- Working with guests 1-on-1 to help demystify technology, and help teach computer and smartphone workshops

ACTIVITIES & INITIATIVES

2017-Present: **Athenian WiSE, The Athenian School**
Co-Founder & Board Member
- Founded WiSE (Women in Science and Engineering) – a gender-diversity STEM initiative
- Run an annual hands-on STEM event that attracts 200+ people – now in its 3rd iteration

2017-Present: **FRC Team 852, The Athenian School**
Programming Lead & Executive Board Member, Member Training Lead, Operations Lead
- Member of executive board, which includes 6 students team mentors, and has final say on all team decisions
- Responsible for all programming on the robotics team, including robot driver-control, autonomous, and team apps
- Responsible for organizing all pre-season team training, develop curriculum and teach programming sessions
- Oversee team operations (non-robot) tasks, including outreach and competition logistics
- 7th year of robotics (including FRC, VEX Robotics – attended World Championships twice, and FLL)

2017-Present: **Entrepreneurship, The Athenian School**
- Developed idea for a software platform to diagnose autism by applying Machine Learning to EEG data
- Won the Northern California division of the Diamond Challenge, a global entrepreneurship competition

2018-Present: **Physics Teaching Assistant, The Athenian School**
- Grade homework assignments, lab reports, quizzes, and tests; tutor students 1-on-1 and hold office hours

2019-Present: **Student Teaching & Learning Committee, The Athenian School**
- Completed a comprehensive review of the Athenian 6-12th grade science curriculum
- Working with the Director of Teaching and Learning to enhance the curriculum and expand the honors program

EDUCATION

2017-Present: **The Athenian School (High School)**, Danville, CA — GPA: 4.47
AP Comp Sci (5), AP Calc AB (5), AP Calc BC, Data Structures & Algorithms, Physics, Biology, Advanced Chemistry
Other Activities: Math Club (Co-Founder)

2020: **AI For Medicine by deeplearning.ai**
• Medical Diagnosis • Medical Prognosis • Medical Treatment

2017-2018: **Coursera Deep Learning Specialization by deeplearning.ai (taught by Andrew Ng)**
• TensorFlow • Keras • Neural Networks • Hyperparameter tuning and optimization • Data collection
• Structuring Machine Learning Projects • Convolutional Neural Networks • Recurrent Neural Networks

EDUCATION

Feb. 2020 — **Dean's List Semifinalist**, First Robotics Competition
Nov. 2019 — **Meritorious,** High School Mathematical Contest in Modeling (HiMCM)
Nov. 2018 — **3rd Place,** SMHacks (High School Hackathon)
Feb. 2018 — **Northern California Winner,** Diamond Challenge
Apr. 2016 — **2nd Place**, Alameda County Science and Engineering Fair