Tejaswi Koduru
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Weighted GPA: 4.516, SAT: 1600, ACT: 36, PSAT: 1510

APs: Psychology (5), BC Calculus (5), Microeconomics (5), Macroeconomics (5), U.S History (5), Biology (5), Computer Science A+ (5), Physics 1 (4), U.S Gov (In progress), English Language & Composition (In Progress)

Coursera Online Curriculum (Coursera verified certificates)

- Harvard University: Using Python for Research
- IBM: Introduction to Computer Vision with Watson and OpenCV
- Stanford University: Machine Learning
- Working on Oracle Certified Associate Java SE 7 Programmer (OCPJP 7)

WORK EXPERIENCE

The MITRE Corporation
Emerging Tech Researcher June 2021 – August 2021

- Developed a tool that identified misinformation and disinformation campaigns in social media.
- Used TensorFlow, Keras, and other frameworks to train models based on data pulled from multiple social media platforms.
- Conducted preliminary research into the effectiveness of different advertisements on other social media platforms.
- Presented work to 40+ stakeholders during the MITRE end-of-summer intern conference.

June 2022 – August 2022

- Created a tool utilizing VR/AR technology to create a virtual simulation of special operators as they moved through shoot-houses.
- Developed analytics tools to aid both soldiers and teachers to improve mission performance, improving overall combat effectiveness.
- Presented work during the MITRE end-of-summer intern conference and to representatives from the Navy SEALS.
- ***Nominated for MITRE SPARK Award.***

LymeLyte, National Institute of Health (NIH), Lyme Disease Studies Unit
Lyme Disease Researcher, Published Author June 2020 – July 2022

- Conducted research into the use of machine learning and computer vision in the diagnosis of erythema migrans (EM) rashes.
- Created world's first publicly available dataset of EM rash images & trained ML model using this data.
- Worked with a researcher at the NIH to implement this model into an app and a web tool.
- The app and the web tool were used at a local clinic to diagnose cases of Lyme disease.
- Received a 5k grant from the International Lyme and Associated Diseases Society (ILADS) for my work.
- **Published the research paper entitled "Using Deep Learning in Lyme Disease Diagnosis"**.
- ***Tool was patented (Patent US 63/325,350)***

Albert Einstein College of Medicine, Depart of of Radiology
Researcher, Published Author Dec 2021 – Present

- Working on conducting retrospective COVID-19 epidemiology studies with Python and SQLite.
- Currently working on a review paper summarizing current and potential future work into the relationship between COVID-19 and cancer.
- ***Published work in the "Reviews in Cardiovascular Medicine (RCM)***"

George Mason University
Researcher Aug 2022 - Present

- Working as a developer on GMU's novel iFlood tool.
- Provides real-time flooding forecasts based on a multi-model framework for the Chesapeake Bay and the National Capital Region.
- Using data from water sensors across the Chesapeake to refine existing flood prediction models.

Army Educational Outreach Program (AEOP)
Researcher, Published Author June 2021 – August 2021

- Worked as a researcher at Norfolk State University in Northern VA under the Army Educational Outreach Program (AEOP).
- Used Linux-based systems to launch simulated cyberattacks in a lab environment.
- **Authored and published a 24-page research paper entitled, "Hacking the Farm: An Overview of Cybersecurity Vulnerabilities in Smart Farming Systems".**

Additional Research Project June 2021 – present

- Melanomatics - An intelligent, web-based system to identify and diagnose Zosteriform metastasis, a characteristic symptom of melanoma. **Research paper written and patent acquired** (See below.)

LEADERSHIP AND ACTIVITIES

501c3 Nonprofit Organization GirlsComputingLeague - *National Director of Hackathons* June 2019 – Present

- Working towards closing the gender gap in computer science.
- Partnered with White House CSforAll initiative and impacted 1800 students and teachers.
- Organized BioCode Hackathon (April 2020) for 220 kids and a national AI Summit (September 2020) for 350 students
- Organized numerous workshops at the DC Housing Authority and Virginia/DC Title 1 Schools.
- Organizing hands-on Artificial Intelligence workshops in healthcare for high school students as a part of the 2021 Summit.

TJHSST Automotive Engineering Club – *President* 2020 - Present

- Oversee design & education section of 60+ students. Recruited 46 new members over 4 years. Built a racing simulator, converted 2 go-karts to electric.
- Communicate with administration and faculty to secure approval and gain funding/sponsorships for projects.
- Teach students about the engineering behind cars and why they work, while simultaneously teaching them design skills.

TJHSST UAV Club - *Programming Team Lead/Officer* 2020 - Present

- Lead programming/engineering division of 26 students. Created 3 subsystems of final UAV. Placed in top 20 teams, beating multiple colleges.
- Used waypoint data to create an algorithm to allow the plane to create a flight plan in real-time to adjust for variable conditions.
- Placed in the top 20% at the AUVSI SUAS competition.

Lyme Disease Activist February 2020 - Present

- Lyme Education Ambassador working for the Global Lyme Alliance to spread awareness and educate people about Lyme disease. (https://www.globallymealliance.org/blog/meet-our-ambassador-teja-k)
- Working together with lymedisease.org and ILADS to research the prevention, diagnosis, and treatment of chronic Lyme Disease. (https://www.lymedisease.org/teen-boy-lyme-computer-app/)

TEDx Speaker August 2021 & Sep 2021

- How We're Using AI to Augment the Abilities of Humans – TEDxGreatMills (https://www.youtube.com/watch?v=kSe0kbFSuiA)
- How AI is Advancing Medical Equity – TEDxChestnutStreetStudio (https://www.youtube.com/watch?v=hY1D2By5CBY)

AVS Academy AI Center Of Excellence - Vice President, Artificial Intelligence February 2020 - Present

- Working with industry leaders to develop various AI-centric projects. Using computer vision models to detect fungi on vegetable plants, allowing farmers to take the necessary precautions to prevent the destruction of their crops.

VOLUNTEER ACTIVITY

- **Arlington Food Assistance Center** Nov 2016 – Feb 2020
  - *Cause: Food Assistance*
- **Britepaths, Fairfax, VA** October 2016 - February 2019
  - *Cause: Housing and Low-Income Assistance*
- **Centreville Immigration Forum** September 2019 – present
  - *Cause: Immigration, food, and housing assistance*
- **Ekal Vidyalaya** June 2016 – present
  - *Cause: Education*

SELECTED AWARDS

- Gold Presidential Volunteer Service Award for the years 2016, 2017, 2018, 2019, 2020 and 2021
- National Merit Scholarship semifinalist (Pending finalist)
- Received a 5k grant from the International Lyme and Associated Diseases Society (ILADS) for my work.
- Presidential Academic Excellence Award 2016, 2017, 2018, 2019 and 2020
- Claes Nobel Academic Excellence Scholars 2021 (Tejaswi Koduru | National Society of High School Scholars (nshss.org))
- Congressional Award (Silver) 2019, 2020 for outstanding contributions to the community
- AP Scholar with Distinction Award July 2022

SCIENCE FAIR AWARDS

- Received the CONRAD innovator award 2021 & 2022
- Diamond Challenge Semifinalist
- Lymelyte App Second place in TJHSST Science Fair
- US Census Bureau: National Honorable Mention at the Opportunity Project Demo Day event for LymeLyte.

RESEARCH PRESENTATIONS

- International Engineering and Management Systems Conference (IEMS) March 2021
- International Society for Computational Biology July 2022
- ILADS conference in October 2021
- IntelliSys Conference September 2021
- Sigma Xi Student Research Showcase Student Presenter

PUBLICATIONS

- Cardiac Magnetic Resonance Imaging of COVID-19-associated Cardiac Sequelae: A Systematic Review https://www.imrpress.com/journal/RCM/23/12/10.31083/j.rcm2312389
- An Overview of Vulnerabilities in Smart Farming Systems (https://www.jsr.org/hs/index.php/path/article/view/2303)
- Using Deep Learning in Lyme Disease Diagnosis (https://www.jsr.org/hs/index.php/path/article/view/2389)

PATENTS

- LymeLyte: Patent US 63/325,350
- Melanoma Diagnosis Tool: Patent US 63/367,360