Athulya Saravanakumar

Sugar Land, Tx | 832-487-3283 | Athulya.Saravanakumar1@gmail.com
Athulya's Personal Website | Athulya's LinkedIn

EDUCATION

Dulles High School: ***Math and Science Academy*** *2019 - 2023*
Distinguished Level of Achievement (with Computer Science Endorsement)
GPA: 4.31/4.0 **Rank:** 85/568
AP and Beyond AP Coursework: Computer Science III (Data Structures), AP Computer Science A, AP Computer Science Principles, AP Physics I, AP Physics II, AP Physics C Mechanics, AP Physics C Electricity and Magnetism, AP Calculus BC, AP Statistics, Multivariable Calculus, AP Biology, AP Chemistry, AP English Language and Composition, AP US History, AP World History, AP Macroeconomics, AP US Government and Politics

WORK EXPERIENCE

JP Morgan Chase Co.: *Architect and Full-Stack Intern* *42hrs/week July 2022 - August 2022*

- Was selected for a 6-week unpaid software internship to develop a usable product for JPMC
- Design solution and model architecture with front-end, back-end, and database framework
- Coded a React application for easy user interface for Admins to retrieve data from Cassandra
- Perform product presentation at JPMC Houston Tower to showcase work to JPMC Executives
- Skills Used: Cassandra Database, React, Spring, Material UI, Java, Javascript, CSS

Cisco Systems Inc.: *Team Lead Internet of Things Extern* *40hrs/week June 2022 - July 2022*

- Was selected from 800+ applicants for IoT Cisco High program
- Held 112 meetings with technology and business Executives to gain industrial exposure
- Lead Capstone Project on railroad safety and implement vibrational analysis of derailments
- Recognized by Executives for leadership and named “Extern of the Week” representing Texas
- Skills Used: IoT, Networking, AI/ML, Advanced Physics, JavaScript, React, Material UI

TAPCentric: *Java Developer* *20hrs/week October 2022 - Present*

- Selected for part-time paid work to design solutions and create software for startup company
- Redesign digital media for inside and outside home applications on cellphone, laptop, etc.
- Full ownership on backend sector of company to code data structures and maintain Big Data
- Communicate effectively with senior directors of company to test the code implemented
- Skills Used: Java, SQL, Data structures, IOS and Android Development

Pre College Research Institute: *Junior Researcher* *June 2022 - August 2022*

- Was selected for the Physics/Math cohort out of international applicants
- Studied college level concepts to incorporate into personal research by attending 30 lectures
- Performed literature review on machine learning vibration analysis to improve environment
- Programmed K Nearest Neighbor AI models to categorize frequencies from vibrations
- Skills Used: Integrated Physics, Linear Algebra, Multivariable Calculus, Latex, AI

InspiritAI: *Artificial Intelligence Ambassador* **(AI+Calculus Article)** *December 2021 - Present*

- Connect with students around the world to teach and showcase Artificial Intelligence projects
- Meet with start-up A.I companies, Google, Microsoft to explore innovations and career paths
- Write articles about the applications of AI and published by technology companies

Codeverse: *Rank 2 Programming Guide* *10hrs/week June 2021 - June 2022*

- Selected for Paid work to program and debug 40 games for the Annual Codeverse Show Case
- Administered daily programming class and created new curriculum for ages 5-15
- Skills used: JavaScript, Object Oriented Programming, Game Design

SUMMER PROGRAM

University of Texas at Austin: *Robotics Academy* *June 2021*

- Implemented PID for robot in Gazebo simulation using line-follower with 90% accuracy
- Compete in a robot race against other students and won 2nd place
- Sensor thresholding by testing and tuning values detected at various distances, colors, and touch
- Program Turn & Push method uses in products like Roomba
- Assemble and program the Bot'n Roll One A robot and program robots
- Discover new technologies with Professor Justin Hard and industry representatives
- Utilize tools deployed in robotics research and experiment with controls of wheeled robots
- Discover future internship, career opportunities and explore UT campus community
- Skills used: Calculus, C++, Gazebo, Robot Operating System, Arduino, Virtual Machine

Texas A&M at College Station: *Artificial Intelligence and Data Science SMaRT Camp* *July 2021*

- Attended numerous workshops by A&M professors on A.I. topics
- Exposure into data science techniques and cybertechnologies
- Lectured about cutting-edge cyberinfrastructure methods, number theory, and combinatorics
- Applications to coding and computer architecture and created own Virtual Machine
- Lead a team of 5 on project to analyze COVID and hygiene products using Linear Regression
- Presented in front of around 100 Texas A&M staff and families with results from the project
- Skills Used: Data Science, Cybersecurity, NumPy, MatLab, Pandas, and Tensorflow

Coding4Medicine: *Intermediate Scholar* *July 2020*

- Analyzed coronavirus (SARS-CoV-2) and ALDH2 and wrote code to analyze the nucleotides and find key genes and explore the human genome
- Learned Python programming language through a series of problem solving exercises
- Programed on Linux operating system and explored its commands
- Observed genomic data through NCBI BLAST for DNA sequences
- Learned to develop computer algorithms to analyze genomes to see the big picture of where the new cutting-edge jobs are created for the 21st century
- Skills Used: Python, Linux, NCBI BLAST, MUSCLE, Advanced Biological DNA Analysis

Rice University: *Tech ID Camp* *July 2019*

- Attended classes on the fundamentals of Java and concepts like OOP, loops, if statements, etc.
- Created game application of rockets and meteoroids with animated user interface
- Participated in Binary Counting competition and won 1st Place
- Explored college level Computer Science and Calculus I, II, III curriculum
- Gained interpersonal skills and explored Rice Campus and culture
- Worked with a team of 5 to tackle various coding challenges to increase speed and skill
- Skills Used: Java, IDE Operation

LEADERSHIP

International Coding For Medicine Club: *Founder and President* *August 2020 - Present*

- Research made accessible for high school students across the globe **(CFM Club)**
- Leading around 13 other chapters and 150+ members in the nation and international students
- Leading research team of 6 selected members on Holoparasitic Blanaphora Plants
- Meet with scientists Dr. Samanta and Dr. Bouse to discuss CFM organization and how to expand
- Invited to *National CFM Club Talk* by Dr. Samanta this summer and spoke to 100+ people
- Creating and teaching bioinformatics curriculum and concepts by breaking down advanced Python and Biology lectures
- Host coding virtual workshops for underrepresented communities of the STEM field such as women, Black/Hispanics, and low-income
- Hoost booths at elementary and middle schools to showcase Python Turtle Graphics and Molecular Geometry in fun and interactive ways
- Overlook the social media account, website, and member info/attendance on excel sheets

FIRST Robotics Club: *Vice President and Programming Lead* *August 2019 - 2022*

- Organize competitions as the League Host (18+ FIRST teams around the district)
- Recognized for being the first female programmer of Fort Bend District, outreach to community, and advanced programming skills to win FIRST Tech Dean's List Finalist
- Teaching Java and hosting "women in STEM" workshops to rid gender bias and outreach
- Program advanced calculus based algorithms like PID for avoiding obstacles
- Work with motion planning and trajectory RoadRunner library to ensure robot moves autonomously
- Reworked existing code that used Threads and replaced it with State Machines to improve efficiency of program
- Manage electrical component for Expansion Hub regarding 12V DC motors used
- Managed encoder wires for each sensor, spiral wire sheath, and the grounding wire resistive grounding strap that propagates the electricity and signals to the robot

Mu Alpha Theta Honor Society: *Secretary and Contest Math Tutor* *August 2019 - Present*

- Hosted Math & Science Night, for 30+ STEM companies and 150+ elementary students
- Creating bi-yearly math puzzle contests for members to participate in
- Volunteer at elementary to create curriculum and teach contest math weekly
- Managed social media, sponsor communication, and point system on spreadsheet

UIL Computer Science Club: *Vice President and Applied CS Mentor* *August 2019 - Present*

- Created and taught UIL Computer Science contest curriculum weekly
- Attended UIL competitions at district level.
- Coded the club's website **(CS Club)** and helped manage the point system

Girl Bytes: *Computer Science Mentor* *August 2020 - Present*

- Created curriculum for programming workshops, Java, Web-Development to inspire 100+ women
- Volunteer at middle school, mentoring young women for Technovation competition weekly

Miracle Club: *Sponsorship Representative* *August 2019 - 2021*

- Donate money to hospitals and spread awareness of kids with cancer
- Contact companies for sponsorships via meetings, email, sales

ACTIVITIES

Japan Robotics and Engineering: *Study Abroad* *Starting March 2023*

- Travel to Japan to learn about robotics companies in Japan and technologies that they use
- Analyze Japan's new innovation in sustainability and human transportation through high-speed magnetic trains and immerse in cultural activities
- Get to learn Japanese culture through celebrating traditions and cooking cultural food

South Asian Students Association: *Member* *August 2021 - Present*

- Set up South-Asian events like Samosa Social and Garba for Fort Bend District
- Perform cultural dances for events like Diwali and Holi to 50+ audience
- Bring awareness of South-Asian culture by designing and posting on social media

National Honor Society: *Inducted Member* *August 2021 - Present*

- Perform services by helping underprivileged and underrepresented communities like Black, low-income, women, Hispanic, etc.
- Volunteer at Easter Festival to celebrate holidays and bring entertainment to community

Marathons *2012 - Present*

- Attend local running competitions and marathons in my city to help promote against diabetes
- Fort Settlement Regional 3rd Place Winner 2017 for 400x4 Relay Race

Build Terrariums *2021-2022*

- Hobby of building terrariums with materials to replicate a natural setting
- Donated around 30 hand built terrariums students, friends, teachers who are struggling with mental health

Basketball Tournaments *2017-2022*

- Arrange basketball tournaments every few months for 20 students to a friendly competition
- Fort Settlement Regional Champions Basketball B-Division

Dulles Badminton *2022*

- Play badminton once a month at Houston center with students and teachers
- Attend monthly meetings to learn skills and techniques of badminton

RESEARCH/PROJECTS

Autonomous Driving - Reinforcement Learning *August 2022*

- Programmed R.L. agent to make a car simulation drive based on Exploration/Exploitation to maximize reward with 90% accuracy
- Skills used: Deep Q Learning, Greedy Policy, Reinforcement Learning, Convolutional NN

Autonomous Driving - Object Detection *December 2021*

- Recreated Tesla's non-Lidar approach of object detection of street images, people, animals, and human belongings with 99% accuracy using AI computer vision models
- Skills used: YOLO AI Model, OpenCV, Sliding Windows, Transfer Learning

Blanaphora Holoparasitic Research *November 2021 - Present*

- Analyzed why more plants are becoming holoparasitic and the evolutionary history of Santelilies

- Blanaphora DNA sequence and compared with other holoparasitic plants
- Skills used: Biopython, NCBI BLAST, MUSCLE

Malaria Diagnosis App *May 2022*
- ML app to help huge numbers of people diagnosed and treated for Malaria
- Help healthcare in rural/developing areas diagnose malaria without expensive lab equipment
- Upload an image of blood cells under a microscope, and then detect the malaria parasite
- Skills used: Computer Vision, Streamlit, Python, Keras

Tweet Detection *March 2022*
- Designed a text classification ML model to automatically flag hateful or offensive tweets
- Skills used: BERT, RNNs, LSTMs

Emotion Detection App *January 2022*
- ML model capable of identifying emotions from facial images
- Deploy model as an app for clients to be able to use in a user friendly manner
- Skills used: Computer Vision, Streamlit, Python, Keras

ePydemic International COVID Analysis *July 2021*
- Coded relationship between almost every country's access to hygiene products vs COVID cases
- Skills used: Regression, Pandas, Numpy, Keras

UIL Computer Science Club Website *November 2021*
- Coded the website from scratch for Dulles UIL Computer Science Club
- Skills used: Java, Javascript, HTML5, CSS3, ReactJS

Personal Website *August 2021*
- Coded my website portfolio from scratch to demonstrate who I am
- Skills used: Java, ReactJS

VOLUNTEERING

Friends of First Colony Library *August 2019 - Present*
- Set up book sale, arrange books, and assisted book shoppers on monthly book sale
- Manage the cash register and handle various forms of payments

Colony Meadows Elementary Mathletes *October 2021 - Present*
- Volunteer at elementary to create curriculum and teach contest math to 20 kids weekly
- Create contests and exams for kids to monitor progress

Dulles Middle School Technovation *January 2022 - March 2022*
- Mentoring young women for Technovation competition and teaching computer science weekly
- Build the kids's interpersonal skills and break the "shy-shell" through team bonding activities

FIRST Robotics Workshops *November 2019 - September 2022*
- Hosted Java, presentation, electrical workshops biweekly
- Hosted 5 virtual workshops for 40+ women on building confidence in the STEM field
- Took young women to attend FIRST#LikeAGirl at NASA to further boost confidence

Assessment Grading *August 2019 - Present*

- Volunteered to grade my AP Biology, Chemistry, and Calculus teacher grade assignments
- Assist in organizing of files, papers, and notebooks

FIRST League Host *November 2019 - September 2022*

- Set up tournament/competition area as the league host, for 20+ teams in Houston region
- Package and relocate materials while maintaining log of where 100+ equipment is and goes

Reuniting Indians In Cultural And Social (RIICAS) *November 2019 - September 2022*

- Every year for Diwali, apply mehandi to young girls hands and set up dance performance
- Perform at event with traditional dances like Raas and modern dances like Bollywood

AWARDS

- FIRST Tech Challenge Dean's List Finalist (2021)
- Cisco High 2nd Place Capstone National Winner (2022)
- NCWIT Regional Affiliate Winner for Houston (2022)
- FIRST Robotics Challenge District Engineering Inspiration Award 1st Place (2020)
- FIRST Tech Challenge Inspire Award 1st Place Houston Regional Championship (2021, 2022)
- FIRST Tech Challenge Connect Award 1st Place Southwest Houston Championship (2022)
- NCWIT Regional Affiliate for Houston (2019, 2021)
- Digital Divas Hackerank 2nd Place (2021)
- Academic Excellence Award from High school (2019 - 2023)

SKILLS

Technical: Advanced: Java, Python(Numpy, Keras, Pandas), Artificial IntelligenceI/Machine Learning, Data Structures, Fullstack, Cassandra, ReactJS, Javascript, CSS3, HTML5, Electrical, Robotics
Non-Technical: Presentation, Public Speaking, Collaborative Team Member, Servant Leader
Hardware and Software: OpenCV, ROS, Arduino, CAD Autodesk Inventor, RaspberryPi
Languages: English, Tamil, Spanish
Certifications: Cisco IoT (2022)**,** Inspirit AI (2021, 2022), Robotics Academy at UT Austin (2021), Texas A&M AI/Data Science Camp (2021), Coding4Medicine (2020), ID Tech Camp (2019)