Nikhil Sardana

GITHUB.COM/NIKHILSARDANA | NIKHILSARDANA.GITHUB.IO

ABOUT

Grade: 11
Year: Class of 2018
GPA: 4.28

SKILLS

PROGRAMMING SKILLS

Proficient | Python
Proficient | Java
Proficient | HTML, CSS
Good | Javascript, WebGL
Good | C, MPI, OpenGL

EXPERIENCE WITH

- Windows, Mac OS, Ubuntu and Gentoo Linux
- Android Studio
- NodeJS
- Git
- Blender
- Microsoft Office

WEBSITES I MAINTAIN

- nikhilsardana.github.io
- tjmachinelearning.com
- activities.tjhsst.edu/chemteam

EDUCATION

THOMAS JEFFERSON HIGH SCHOOL FOR SCIENCE AND TECHNOLOGY

NOTABLE COURSES

Post-AP | Artificial Intelligence – Python-based, algorithm-focused
Post-AP | Parallel Computing – Using MPI, C, and OpenGL
AP | Chemistry
AP | Physics Mechanics & Electricity and Magnetism
AP | BC Calculus
AP | Computer Science A+

AP EXAMS

5 | AP Biology
5 | AP Chemistry
5 | AP Computer Science A+
5 | AP Statistics

SAT II

800 | Chemistry

National Merit Scholarship Semifinalist (2016)

OTHER COLLEGE-LEVEL COURSES

AP | Latin
AP | U.S. History

ACCOMPLISHMENTS

SEMIFINALIST • SIEMENS COMPETITION (2016)

- "Automating Identification of Terrorist Recruitment on Social Media Using Deep Learning"
- Algorithm to detect terrorist accounts on Instagram using convolutional neural networks for image analysis and data from captions
- Used Pybrain for neural networks but switched to Tensorflow for convolutional networks to reduce train time from 24 hours to 45 minutes
- Resulted in over 90% accuracy
- Automatically advanced project to ISEF-affiliated regional science fair (2017) from semifinalist ranking

NIKHIL.SARDANA20@GMAIL.COM

(703)-362-1229

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LEADERSHIP

TJHSST MACHINE LEARNING CLUB
• **TJMACHINELEARNING.COM**
• Co-founder and Captain (2016-2017)
• Teach other students not only how to create machine learning programs, but also applying them to real-world data sets through competitions.
• Example: Classifying liver data using decision trees

TJHSST CHEMISTRY TEAM • **ACTIVITES.TJHSST.EDU/CHEMTEAM**
• Webmaster (2016-2017)
• Pioneered use of ChemDoodle 3D models to create interactive learning
• Open-sourced all code for website

5TH PLACE • **MIT BATTLECODE | HIGHSCHOOL DIVISION (2017)**
• Month-long competition combining battle strategy, software engineering and artificial intelligence
• Wrote pathfinding, dodging, and communications algorithms in Java

SEMIFINALIST • **USA BIOLOGY OLYMPIAD (2015)**
• Top 500 in United States
• Also took University of Toronto Biology Exam (2015)

BIOLOGICAL RESEARCH PAPER • **2015**
• "The Perceiving Physarum: Testing Slime Mold Behavioral Response"
• Yearlong research project
• Used combination of stimuli to direct slime mold growth

3-TIME GOLD MEDALIST • **NATIONAL LATIN EXAM (2014-2016)**
AIME QUALIFIER • **2015**
SILVER LEVEL • **USA COMPUTING OLYMPIAD**
TJHSST TRACK AND CROSS COUNTRY • **(SPRING 2016-PRESENT)**

PROJECTS

TITRATIONGL • **3D WEBGL TITRATION SIMULATOR (2016)**
After seeing the outdated online titration lab in AP Chemistry, I decided to build a modernized, interactive, 3D, WebGL-based titration simulator. This project helped me learn Javascript and WebGL.

RICOCHET • **ANDROID GAME (2016)**
A fun, modern, minimalistic game I created over Spring Break to help me learn Android development.

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