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Student & Software Developer

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, NodeJS
Good | C, MPI, OpenMP, OpenGL

EXPERIENCE WITH

- Windows, Mac OS, Ubuntu, CentOS, and Gentoo Linux
- Scikit-Learn, Tensorflow
- Android Studio
- Git
- Blender
- LaTeX
- Microsoft Office
- Figma

WEBSITES I MAINTAIN

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

LEADERSHIP

TJHSST Machine Learning Club

- Co-founder and Captain (2016-2017)
- Teach other students not only the theory behind machine learning but also writing programs and applying them to real-world data sets through competitions
- Mentor students in submitting to Kaggle competitions
- Maintain tjmachinelearning.com

TJHSST Chemistry Team

- Webmaster (2016-2017)
- Pioneered use of ChemDoodle 3D models to create interactive learning
- activities.tjhsst.edu/chemteam

PROJECTS

TitrationGL - WebGL Titration Simulator

After seeing the outdated online titration lab in AP Chemistry, I decided to build a modernized, interactive, 3D, WebGL-based titration simulator.

Ricochet - Android Game (2016)

A fun, modern, minimalistic game I created over Spring Break as a foray into Android development and game design.

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 | Latin
AP | U.S. History

SAT

1590/1600 | Reading + Math
8-8-8 | Essay

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)

ACCOMPLISHMENTS

Automating Identification of Terrorist Recruitment on Social Media

- Algorithm to detect terrorist accounts on Instagram using convolutional neural networks with Tensorflow library for image analysis and standard neural networks for analyzing data from captions.

- Achieved 97% accuracy for image detection with GPU implementation and 93.5% for overall account classification using SVM with RBF kernel

- Image analysis demo and paper available at terrorist-tracker.com

AWARDS

Finalist | Intel International Science and Engineering Fair (2017)
Semifinalist | Siemens Competition (2016)

Fairfax Regional Science and Engineering Fair (2017)

Grand Prize Winner

1st Place | Systems Software Category

1st Place | MIT Club Award

2nd Place | Armed Forces Communications and Electronics Association

Excellence in Computer Science Award | Intel Corporation

Computer Science Award | Fairfax County Public Schools

Honorable Mention | American Society of Mechanical Engineers

Total of \$1850 in prizes

5th Place - MIT BattleCode, High School Division

- Month-long competition combining battle strategy, software engineering, and artificial intelligence
- Wrote pathfinding, dodging, and communications algorithms in Java
- Competed in Sprint, Seeding, and Final tournaments

Semifinalist - USA Biology Olympiad (2015)

- Top 500 in United States
- Also took University of Toronto Biology Exam (2015)

Grand Prize - HackTJ | BigParser Competition (2017)

- Created “CrimeFighter”, an app for instantly reporting and identifying crimes in real-time for faster response and more accurate information
- Worked on front-end design and implemented BigParser API and Grid for analysis and display of large-scale historical crime data
- Team won \$650 for Best Implementation of BigParser API and Grid

The Perceiving Physarum: Testing Slime Mold Behavioral Response

- Yearlong research project (2015)
- Used combination of stimuli to direct slime mold growth, mimicking the basis of a simple biological computer

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