AVIK JAIN

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I am a student developer with experience using algorithms in educational, competitive, and practical environments. I am particularly interested in machine learning and graph algorithms and their real-world applications. I am currently a Platinum division competitor in the USA Computing Olympiad.

Skills

PROGRAMMING LANGUAGES/FRAMEWORKS

Java
Python
HTML/CSS
JavaScript
Node.js
MATLAB
TensorFlow
MongoDB

MATH CONTEST SCORES

AMC 10: 120
AMC 12: 115.5
AIME: 7

Education

Monta Vista High School

I am a senior at Monta Vista High School (GPA: 4.0 UW). I'm concurrently enrolled at De Anza College where I take advanced math courses. Coursework includes AP Computer Science, AP Physics C, Multivariable Calculus, Linear Algebra, Differential Equations.

Experience

Hunch.AI
Machine Learning Intern

San Mateo, CA
June 2017 to August 2017

Extended face detection and classification models to video data, using temporal information to improve classification accuracy. Tested and compared machine learning models, focusing on theoretical justification for results. Implemented multithreaded pipeline to index and search celebrity video database for clips with actors/actresses.

IncubateX Global Hackathon
Director of Technology

June 2016 to January 2017

Led team developing customizable website template used by hackathons for promotion by over 10 events. Led mobile app development and wrote Android app and web server which allows event organizers to deliver location-based push notifications and updates to hackathon participants.

MathAndCoding
Director of App Dev. Workshops, Program Leader

Bay Area
January 2016 to Present

Led workshops teaching introductory problem solving and programming with Java and Python to hundreds of students. Created curriculum for introductory programming with Android AppInventor, resulting in more engaging workshops with higher retention. Received Gold Presidential Service Award.

Projects

graphanim
July 2017 to November 2017

Easy-to-use Python graph algorithm animation library. Developers just need to add a few lines to an existing algorithm implementation to generate a GIF in which nodes and edges are colored at different times to show algorithm progression. To create good visual graph layouts, I developed an effective novel algorithm using gradient descent and evolutionary programming techniques.

SnapStitch
July 2017 to Present

Machine learning based video compilation/summarization tool. It takes several input video clips (e.g. raw vacation footage), extracts important visual concepts, and stitches together the most relevant clips for each concept, to create a concise summary with unique clips and no redundancy. I designed and implemented the core algorithm, which uses pre-trained image embeddings, clustering algorithms, and nearest neighbor similarity metrics.

MV JSA Member Portal
July 2016 to Present

A member portal and moderated blogging platform for Monta Vista Junior State of America, which allows members to track activities and submit richly-formatted blog posts to officers for review and publication. Built with Node.js and MongoDB.

fbash
April 2016 to June 2016

A command-line tool which allows developers to access their command-line remotely through Facebook Messenger and provides additional utilities for collaboration and development. Installed over 5,000 times through NPM.

SwiftAssist
February 2016

A cross-platform application which leverages crowd-sourcing for rapid real-time emergency response. I built the Android app and Pebble smartwatch app.

Flappy Nerd
July 2015

A Flappy Bird-based game which takes advantage of its addictive nature to assist the user in studying effectively using data queried from Quizlet. I programmed the game physics and graphics. Built with Quizlet API and Java.

Awards

USA Computing Olympiad · **Platinum Division**	December 2016
SM Hacks · **First Place**	January 2017
CU Hacks · **Second Place**	July 2015
Los Altos Hacks · **Best Use of Microsoft Technology**	February 2016
California DECA · **Second Place – Individual Entrepreneurship Event**	February 2015