Alexander N. Dimopoulos

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Experience

NASA Jet Propulsion Laboratories - *CoSTAR Perception Team* **January 2019 - Current**
Pasadena, California

- Built an automated data labeling pipeline which created 3D lidar point clouds from a simulation which mapped to objects of interest in the competition.
- First place team in the DARPA SubT Challenge - CoSTAR (Collaborative SubTerranean Autonomous Resilient Robots) is a collaborative group which consists of members from JPL, CalTech, MIT, KAIST, and is sponsored by Velodyne and Boston Dynamics to compete in the SubT Challenge.
- Currently developing a custom deep learning network to process data from the lidar system which will be used for object detection.

Caltech - *SU Research Fellowship* **June - September 2020**
Pasadena, California

- Researched methods of deep learning which perform semantic segmentation of 3D point cloud data which would be used to augment the speed and accuracy of the object detection systems.
- Worked with simulation environments to analyze and record sensor data to replicate and test live robotic scenarios.
- Submitting final paper August 21st and presenting research to the Caltech/JPL community.

Projects

Triton RoboSub Team - *Software and Machine Learning Team* **September 2019 - April 2020**
Tools: Pytorch, OpenCV, Python, and ROS

- Built an autonomous robotic submarine to compete in the RoboNation International competition where we placed above both UC Berkeley and Caltech in 2019 at the Navy base here in San Diego.
- Machine Learning Team - Utilized YOLOv2 object detection model in order to analyze sensor input and to provide navigation directions to the sub using image recognition and sonar data.
- My primary task has been adapting the ML model for our specific challenges which includes navigating along a path, guiding the sub between course obstacles, and locating and firing a torpedo at a target.

NASA Space Apps 2018 Hackathon - *Event Lead Organizer* **June - October 2018**
Pasadena, California

- As the lead organizer of the NASA Space Apps Hackathon Pasadena 2018 I planned and managed the event which took place over three days at two locations with sponsorships from Google, Amazon Web Services, Microsoft Azure, and several local community organizations.
- The hackathon hosted 200 people, provided meals and beverages, and included presentations from members of JPL, UCLA, UCSF, and CalTech. Two of our teams went on to present their projects to NASA in a global competition at the Kennedy Space Center.

Automated Day Trading Bot - *Python*
Utilized: REST API, Web Scraping, JSON, and simulated monetary exchanges

- I built an automated stock trading script which analyzes real time market data and coordinates the buying and selling stocks based on custom statistical parameters.
- It includes a simulated wallet which allows for the modification of trading strategies without the risk of financial loss.

Nomad - *AR Virtual Workspace*
Tools: Swift and Xcode

- My partner and I are working on a project where we are designing an AR platform which displays web browsers and smartphone applications in a virtual office.
- The goal of this project is to create a tool which can be used by students and professionals to increase efficiency and allow for productive remote work in any location.

Reverse Polish Notation Calculator - *C++*
Pasadena City College, C++ Object Oriented Programming

- For a class project my partner and I built a calculator from scratch which takes in a mathematical equation, converts it to polish notation, and then solves it using stacks and queues.

Skills

Python: Experience use in professional (NASA), competitive (DARPA), and personal use in hobby projects.

TensorFlow: Utilized in my work at JPL on 3D object detection.

C++: Learned in college with object oriented programming and utilized in my Honors Discrete Math course.

Pytorch: Worked with during my time on the Triton RoboSub team for visual object detection.

ROS: Used on both robotics teams for data collection from image and 3D sensors.

OpenCV: Built a centroid tracker and other side projects for fun.

Swift: Self taught and used to build applications which have been hosted on the App Store.

Javascript, CSS & HTML5: Self taught through building my own website and contract work for small businesses.

Work experience

Database Management -*Pincus Professional Education* **January 2018 — February 2019**
Pasadena, California

- My responsibilities included managing out database structure, updating systems, and designing new protocols for data processing.
- I also wrote an instructional which detailed how our system worked and helped train junior staff.

Senior Technology Manager - *Souvenir Coffee Roasters* **February 2017 — January 2018**
Berkeley, California

- My responsibilities included managing online sales, running the website, and analyzing sales data to organize and prepare inventory.
- I also set up and maintain technological aspects of the business such as internet, security and audio systems.
- Provide feedback to our roasters on product quality and organize business meetings with our partners.

Education and Achievements

University California San Diego – Cognitive Science with Specialization in Machine Learning
GPA: 3.50 Graduating: Spring 2022
I was accepted to UCSD for the Math and Computer Science major, however once there I learned of a new and fascinating department, the first of which had been founded on the very campus, Cognitive Science. With a specialization in Machine Learning I have the ability to focus more of my courses towards ML and get to learn about data science, technology design, and human computer interaction. This balance allows me to learn the technical aspects of my field and gives me insight about product and user interface design.

Pasadena City College – Computer Science and Mathematics
GPA: 3.67
I completed every math and computer science course offered at PCC before transferring to UCSD in Fall 2019.

- *Graduate on the Dean's Honor Roll*
- *Vice President of the Computer Science and Math Club*
- *Math Engineering Science and Achievement Honors Transfer*
- *Wells Fargo $3000 Scholarship*

About Me

I was raised in Pasadena, lived in Berkeley, and enjoy coffee and learning new things. In my free time I love to cook, read, and practice Jiu Jitsu. It has always been my dream to work at Google and I have strived through six years of city college and two years at UC in order to contribute to the next great advancements in Ai technology.