Yul Sung

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EXPERIENCE

Silicon Valley Synopsys Science Fair
San Jose, California — *Member*

January 2025 - April 2025

I competed in the Silicon Valley Synopsys Science Fair and won 1st place in the engineering category. For my project, I compared my custom made algorithm called DR-RRT (Direct Route RRT) against RRT (Rapidly Exploring Random Tree), an already existing algorithm. I tested both algorithms through three different maps and compared them on their computation time and total distance traveled to determine which algorithm was most effective in wildfire response.

Advanced Aeronautics
San Jose, California — *Member*

September 2024 - Present

I joined the Advanced Aeronautics team at Valley Christian. Our task was to develop a drone that can independently navigate an obstacle course (consisting of hoops, arches, and landing pads) and pick up designated objects (tennis balls). Our team used the pathfinding algorithm I developed at XPRIZE Wildfire. As for detecting obstacles and tennis balls, we used RoboFlow to annotate and develop models with a 85% accuracy rate.

NASA Internship
Palo Alto, California — *High Schooler Internship*

June 2023 - July 2023

I did research on how a drone could be equipped with a hyperspectral camera and use convolutional neural networks to detect diseases. I was in charge of the drone research and modeled the drone in Blender. I did all the work for the drone criteria, elimination, and components.

Paper: [Plant Disease Detection: Exploring Applications in Hyperspectral Imaging and Machine Learning for Agriculture](#)

Game Internship
Palo Alto, California — *High Schooler Internship*

September 2023 - December 2025

I am an intern a Lirvana Labs and I work on creating brain teasers. I have created 2 brain teasers and have picked up proficiency in Rive. I learned to

SKILLS

Leadership

Planning/organizing

Time Management

iMovie

Blender, Maya, Onshape

Rive(interactive animations)

Unity Game Engine, simulations

C#, Python, Java, Java Script, C++, C, HTML

Visual Studio Codes

Canva

Photoshop

Google Slide, Doc, Sheets

Pathfinding algorithms

Computer vision/object detection

RoboFlow

Finance

AWARDS

Silicon Valley Synopsys Science Fair – I competed in the Silicon Valley Synopsys Science Fair and won 1st place in the engineering category.

XPRIZE Semi Finals – Our

work and meet deadlines in a professional manner.

Boss: christie@lirvanalabs.com

XPRIZE Wildfire
San Jose, California — *Member*

September 2023 - Present

I am the Software Team Lead of XPRIZE Wildfire at Valley Christian. In my early years developed a pathfinding algorithm inspired by RRT* that allows our drones to autonomously navigate around obstacles. I also worked on creating a RGB detection model using RoboFlow to detect smoke and fire. Additionally, I implemented a triangulation algorithm, allowing our team to give accurate coordinates to the pathfinding algorithm. I have worked on creating a pan-tilt system that scans for smoke and fire, centers itself on detection boxes, and returns its pan and tilt values. Lately as the software team lead, I have been focusing on creating software architecture documents, organizing tasks, and giving presentations to XPRIZE judges. Our team is currently in the semi-finals.

Zero Robotics - Led by MIT and sponsored by CASIS, Northrop Grumman Foundation, and NASA
Palo Alto, California — *Counselor*

July 2023

In 2023 I was one of the counselors at Zero Robotics in Palo Alto. Last year I was a student lead on the team, but this year I am a teacher. I have so far helped introduce the students to the competition concept and teach the API of the software.

DECA SVCDC Conference
Santa Clara, California — *Team Captain*

January 2023

I was the captain of my team for DECA. DECA is a business competition for high schoolers and college students. Our team had been preparing for months writing a business plan, making a presentation, and studying for a business exam. Although we did not win, I have gained a great deal of knowledge and experience.

LaunchX
UC Berkeley, California — *CFO*

July 2024 - August 2024

I attended the business summer program at LaunchX. I joined forces with three other like-minded entrepreneurs from across the world to develop Cogent AI. We focused on giving a free learning tool powered by AI to students all over the world. Additional features and stronger AI were also provided for a fee. My main role on this team was to handle the finances. I created Pro Forma Income Statements, balance sheets, and projections.

team moved on to the semi finals, being in the top 5% globally. We also received a prize for moving to the second round, winning Valley Christian High School $25,000.

DECA Roleplay States – Won 1st place at Sports Entertainment Marketing Roleplay at DECA State Conference.

Conrad Challenge Award Innovator - Won innovator award for detecting bee disease.

Zero Robotics – Our team placed first in a contest that is sponsored by NASA.

President's Education Award - Graduated middle school with academic excellence.

[GYEC](#) – Won top 10 out of 350 teams for internationals.

BasiCubes
Palo Alto, California — *Digital Creator/Founder*

December 2022 - Current

I created a YouTube channel to teach 3D modeling with Blender. I also launched a website with blogs, tutorials, and a gallery. I use Instagram, YouTube, and ArtStation to promote my website. (https://basicubes.com/)

Christian Club Leader
JLS, Palo Alto — *Christian Club Leader and Founder*

August 2021 - June 2022

I started a Christian club at my Middle School with 8 regular members. This eventually led up to a big week in March where I held 2 promotions of our club and hosted 2 events. The final event had 50 students attending.

Zero Robotics - Led by MIT and sponsored by CASIS, Northrop Grumman Foundation, and NASA
Palo Alto, California — *Student Lead*

July 2022

I was a student lead in our robotics team in a robotics contest for middle schoolers. We had a total of 6 members on our team. I was chosen to be one of the 2 student leads. Our team placed first in the contest.

Game Team
Mountain View, California — *Member*

February 2021 - Current

I joined our Youth Ministry's game team. This is a team that comes up with games to lead during Friday Service or at Retreats. I joined early on when it was just the team leader. We have now grown in size to 6 people.

EDUCATION

Valley Christian Schools
San Jose, California

August 2022

High school

Publications

NASA Research Paper

Paper: [Plant Disease Detection: Exploring Applications in Hyperspectral Imaging and Machine Learning for Agriculture](#)

Comparison of TSP, Dijkstra's, and A* algorithm

Paper:
https://nhsjs.com/2025/optimizing-drone-based-crop-monitoring-an-analysis-of-the-shortest-path-problem/

Synopsys Science Fair: Comparison of DR-RRT and RRT*

Paper: 1st Place in Engineering

Southern California Conference for Undergraduate Research: Investigating Social Media Recompression Effects on Video-Based Steganography Methods

Poster presentation at SCCUR

PROJECTS

GDWC — *Game Competition*

I spent 5 months working on a game for a competition. I was able to recruit 2 programers, 2 artists, and 2 musicians to help me along. I created tasks, deadlines, and plans to complete the game on time. Link: https://basicubes.itch.io/cell-knight

DECA — *ESB Event(Start-up Business Plan)*

I spent 4 months with my team coming up with a business idea and creating a business plan. We then made a presentation to show to the judges.

Ninja Dash — *Video Game*

I spent 3 months working on a video game to prepare to lead a game club in sophomore year. Got 20 downloads and 60 views. This was just a little project to dip my feet in game development. (https://basicubes.itch.io/dash-game)