SHERYL HSU

EDUCATION

Valley Christian High School Class of '22
GPA: 4.800 (4.0 scale), 1560 SAT, 35 ACT, 15 AP Classes
AP Computer Science A, AP Physics C, AP Biology, AP Chemistry, Multivariable Calculus, AP Statistics, Advanced Data Analysis, Linear Algebra

Stanford University Class of '26
Plan to study computer science

EXPERIENCE

Researcher, MIT PRIMES-USA (Jan 2021 - Present)
- One of ~50 students accepted to prestigious research program
- Develop bio-inspired algorithm to solve Steiner Tree problem
- Write algorithm in Java, data analysis and graphics in Python
- Setup Amazon Web Services and build container images using Docker
- Present at UMS poster session, PRIMES Conference, accepted to JMM 2022
- Paper #1: Cell fusion though slime mold network dynamics (with Prof. Laura Schaposnik), Journal of the Royal Society *Interface* (revised and resubmitted), preprint on arXiv
- Paper #2: The Power of Many: A Physarum Swarm Steiner Tree Algorithm (with Dr. Fidel Schaposnik, Prof. Laura Schaposnik), Nature *Sci. Reports* (submitted), preprint on arXiv

CEO, Valley Christian MATE ROV Underwater Robotics Team (2018 - Present)
- Develop control system, coral identification program & ethernet camera streaming software
- Build custom PCB and electronic system
- Program GUI using React and a Python web server
- Set milestones, design timelines, and manage team
- Lead team to win 3rd place in the 2021 International Telepresence division, first world championship qualification in school history

Intern, MathHappens Foundation (2022 - Present)
- As paid intern, work to create hands-on ways of exploring and experiencing math
- Create project to teach community about graph theory and finding minimal spanning trees using Kruskal's algorithm
- Build project using CAD modeling, 3D printing, laser cutting, Arduino, Raspberry Pi, and computer vision algorithms

Computer Engineering Intern, Quest Institute (2021)
- As paid intern, create next generation ISS research platform to enable future students to run and monitor experiments in space
- Work on clock, file systems, and camera while working in Arduino and CircuitPython

Intern, NASA SEES — STEM Enhancement in Earth Science (2020, 2021)
- Design algorithm to identify water covered by clouds in satellite data
- Aggregate data to make recommendations on how to reduce urban heat island effect
- Create presentation and poster for NASA Earth Day '21 and American Geophysical Union '21

AMSE (Applied Math, Science, Engineering) Electrical Fellow, Valley Christian ISS (International Space Station) Research Lab (2019 - Present)
- Design experiment, analyze data, and write report on acid disassociation in microgravity
- Serve as electrical engineering expert for entire program (60 students)
- Design and assemble custom PCB to enable testing of student circuits using Arduino

Researcher, Advanced Data Analysis Fall Data Challenge (2021 - Present)
- Analyze data using Excel, JMP, Python (Matplotlib), R
- Work with team to create statistical report on food insecurity for American Statistical Association's Fall Data Challenge

Co-Founder, Madam Math Circle (2020-Present)
- Create an international community of young female mathematicians
- Provide free online advanced math classes to 4-7th grade females
- Grow to over 100 members with chapters in USA, India, and Mexico (instruction in Spanish)
- Lead global team of over 20 volunteers

CONTACT

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AWARDS

Regeneron Science Talent Search Scholar
Recognized as top 300 young scientist & engineer

Coca-Cola Scholars Finalist
One of 250 students selected based on outstanding leadership, academics, and community service

National Merit Finalist

Google Code Jam 2021 Round 2 Qualifier
One of 4,500 qualifiers out of 37,398 participants (mainly computer science professionals)

Canada Computing Senior Division 2021: Honor Roll Group 1
Top 50

USA Computing Olympiad Gold

American Computer Science League 2021 Gold Medalist
Won gold (top 7 globally)

CMU Cybersecurity Competition picoCTF 2019 Top 10%
Decrypt data and exploit vulnerabilities

American Mathematics Contest 10 Distinguished Honor Roll 2020
Top 1% globally

3 time AIME (American Invitational Mathematics Examination) Qualifier

Math League Nationals 2021
6th place, 11th grade division

Diamond Challenge Entrepreneurship Competition 2019: Top 20 Teams Globally
Develop and prototype business concept, write business plan, pitch to judges

SKILLS

- Programming (Java, Python, Arduino)
- Data structures & algorithms
- Statistical analysis in Excel, JMP, and Matplotlib(Python)
- Schematic & PCB design
- CAD in Autodesk Fusion & Inventor
- Version control using GitHub, Git
- HTML, CSS, JavaScript, React