Trung Hoang Vu

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SUMMARY

Computer Science M.S. student at California State Polytechnic University, Pomona and Computer Science and Engineering B.S graduate from UCLA. Have 4 summers of industry experience in SWE, data science, and cybersecurity at NASA JPL, Sandia National Laboratories, and startups. Demonstrated self-starter, team player, and open-minded, independent thinker through TA, research, and club leadership positions. Interested in pursuing SWE, cybersecurity, and AI/ML roles.

EDUCATION

California State Polytechnic University, Pomona — Expected May 2026
Computer Science M.S. — GPA: 4.0

University of California, Los Angeles — Sep 2020 – Jun 2024
Computer Science and Engineering B.S. — GPA: 3.6
Accolades: NSF REU, UPE National Scholarship 2023, Dean's Honor List (20F, 21S, 23W), UCLA Engineering Award in Student Welfare

SKILLS

- **Languages/Frameworks:** Python, C, C++, SQL, HTML, CSS, JavaScript, React, NodeJS, Verilog, Prolog, MATLAB, Java, Haskell, Bash
- **Software & Tools:** Splunk, Jupyter Notebook, Git, Linux, Confluence, Wireshark, Figma, VMware, MongoDB, Docker, LaTex
- **Soft Skills:** adaptive, curious, team player, self-starter, organized, communicative, leader, critical thinker

PROFESSIONAL EXPERIENCE

Sandia National Laboratories — Cybersecurity R&D Intern — Jun 2023 – Present
- Build Python scripts to aggregate IT/OT data using Splunk and RunZero APIs, enhancing data access for Sandia's cybersecurity team
- Revise and create 10 Splunk alerts and 5 lookup tables in Excel for IT/OT data, reducing flagged network activity noise by 60%
- Triage 10 network alerts daily by using Wireshark to analyze pcap files from Zeek, Suricata, Nozomi, and internal systems
- Design low fidelity wireframes for web dashboards in PowerPoint to summarize DHS and CISA client risk and visibility assessments
- Implement web dashboards containing risk and visibility data for CISA clients on Visual Studio Code using Flask, HTML, and CSS

Computer-Aided Drug Design Group — Machine Learning Researcher — Aug 2024 – Present
- Apply unsupervised machine learning using scikit-learn and DGL to predict compound structure changes and drug binding affinities
- Parallelize 7.5 million compound fingerprinting using Python joblib and multiprocessing library, reducing runtime from 45 to 3 min
- Benchmark and parallelize compound fingerprinting and clustering algorithms for scalability from 1 million to 1 billion compounds

Scalable Analytics Institute — Machine Learning Researcher — Apr 2023 – Jun 2024
- Created graph neural network (GNN) using PyTorch and DGL to uncover intrinsic patterns underlying protein sequence databases
- Pre-processed protein dataset by filtering, scaling, and one-hot-encoding amino acid biochemical properties using scikit-learn
- Performed data augmentation to balance 99%/1% unmodified/modified protein dataset, increasing prediction model performance
- Compared GNN to multilayer perceptron (MLP) using accuracy, recall, precision, and F1-score in Python, showing GNN's advantage

UCLA Samueli School of Engineering — Teaching Assistant — Sep 2021 – Jun 2024
- Taught 150 students about C programming, STM32L4 microprocessors, and neural networks for UCLA Internet of Things course
- Developed 16 C programming assignments to build IoT motion detection functionality using accelerometer and gyroscope data
- Implemented dashboard to display IoT sensor data using C, JavaScript, HTML, and CSS with B-U585I-IOT02A IoT node as webserver
- Tutored 21 students in robotic control systems and MATLAB, guiding cybernetics project development in UCLA cybernetics course
- Documented and uploaded Windows/Mac setup guides and assignment solutions to GitHub using LaTex and Visual Studio Code

NASA Jet Propulsion Laboratory — Data Science Intern — Jun 2022 – Aug 2022
- Investigated temperature anomalies using Python to understand regional warming patterns with climate data from 1850 to 2022
- Developed deep neural network (DNN) using PyTorch to predict global and regional surface temperatures for the 21st century
- Benchmarked 65 CMIP6 climate projection models with RMSE and MSE using scikit-learn to rank models by historical accuracy
- Created ensemble and plotted future climate under 4 shared socio-economic pathways using Matplotlib and Jupyter Notebook

SISYPHUS Global Systems — Software Development Intern — Mar 2021 – Aug 2021
- Constructed green and grey infrastructure maps for New Orleans using ArcGIS API for JavaScript to enrich GIS database
- Enhanced web-portal and recommendation engine by integrating open-source IBM software and AI tools into system architecture
- Re-designed company website using HTML and CSS to clearly define company product and tech stack to better attract consumers

TECHNICAL PROJECTS

Bowling Bro — Full-Stack Developer — Aug 2024 – Present
- Develop full-stack web application using Flask, MongoDB, HTML, and CSS for tracking bowling scores and uploading on leaderboard
- Implement OCR with PyTesseract and OpenCV in Python to extract and process bowling scores from IMG, JPG, PNG, HEIC images
- Design low- and high-fidelity wireframes of web application using Figma to visualize website structure and optimize UI and UX

Personal Website — Full-Stack Developer — Aug 2023 – Present

- Leveraged open-source template to develop and host personal website using Hugo, TailwindCSS, and GitHub Pages
- Modified HTML and TOML files to create additional buttons and eliminate redundant features to simplify user interface
- Experimented with various color palettes and website layouts using CSS and SCSS to improve user experience
- Create and populate MD files with data to display on webpages using tables, accordions, and custom developed HTML layouts

Let's Ergo — FPGA Engineer — Apr 2024 – Jun 2024

- Implemented fall detection and ergonomic system by programming Digikey BASYS-3 FPGA running Microblaze processor in C
- Leveraged BASYS-3 FPGA seven segment display and switches to implement display and mode switching functionality
- Integrated accelerometer and gyroscope PMOD on BASYS-3 FPGA to achieve motion detection functionality
- Developed Python script that reads from FPGA through serial port to open web browser on laptop on command

Pong! — FPGA Engineer — Apr 2023 – Jun 2023

- Collaborated with 2 team members to implement Pong game on DE10-Lite FPGA using Verilog
- Developed incrementally increasing ball acceleration functionality and properly displayed game on VGA monitor
- Calibrated RGB colors using Verilog to implement color-changing ball
- Implement button debouncing to suppress bouncing in switches using Verilog by leveraging different clock frequencies

Uniqueness Test — Frontend Developer — Mar 2023 – May 2023

- Implemented web-based questionnaire using React to determine the uniqueness of an individual that was used by 175 students
- Modified and extended codebase to create navigation tab directing users to different versions of Uniqueness Test
- Developed CSS code to have Uniqueness Test's color-palette match the themes of the student programs it was designed for
- Hosted Uniqueness Test online using gh-pages npm package to build and deploy React app to GitHub Pages

Digital Audio Visualizer — FPGA Engineer — Oct 2021 – Jun 2022

- Created system to visualize frequencies of audio signals on VGA monitor using SystemVerilog and DE10-LITE FPGA
- Programmed Flappy Bird video game where users control bird movement using programmed DE10-LITE FPGA buttons
- Implemented test benches using SystemVerilog on Intel QuartusPrime to simulate and examine program behavior

Wordle PLUS — Full-Stack Developer — Feb 2022 – Mar 2022

- Led 4 developers to program full-stack web-app using MERN stack where users guess a five-letter word in six attempts
- Implemented score-based leaderboard page that dynamically displays server-side player data by connecting backend to MongoDB
- Utilized React to modify and extend existing codebase, supporting option to play Wordle PLUS with four- or six-letter words
- Developed Python script to extract 4, 5, and 6 letter words from online dictionaries and generate word bank of 50,000 words

Fitness Form Correction Tool — IoT Engineer — Jan 2021 – Mar 2021

- Developed IoT system that tracks body movement to ensure proper exercise executing using C, Embedded ML Neural Network, and STM32L4 microprocessor on STMicroelectronics SensorTile
- Implemented 2-state motion analysis using C to determine exercise motion correction based on accelerometer and gyroscope data
- Tested and evaluated optimal acceleration and rotation thresholds to accurately classify correct motion patterns

NON-TECHNICAL EXPERIENCE

UCLA Extension — Instructor Aide — Sep 2023 – Sep 2023

- Assisted Technical Management Program instructors facilitate leadership and management workshops for 130 managers
- Mediated and successfully resolved team conflict by facilitating open communication, active listening, and compromise among team members, leading to improved collaboration and a more harmonious work environment
- Ensured smooth program operations by maintaining office supplies, managing inventory, and ordering maintenance repairs

VentureWell — Entrepreneur — Jun 2021 – Sep 2021

- Identified viability of flood damage mitigation product by interviewing 34 urban planning and engineering professionals
- Determined value chain, performed competitive analysis, and identified product-market fit for flood damage mitigation product
- Developed entrepreneurial skills by collaborating with Verizon staff to refine technology stack and marketing strategies
- Organized and presented product pitch for SISYPHUS Global Systems that won against 12 candidate startups

EXTRACURRICULARS

Upsilon Pi Epsilon, the Computer Science Honors Society

External Vice President — Feb 2023 – Jun 2024

- Collaborated with UCLA, tech companies, and campus clubs to organize over 20 events and resources for over 2000 students
- Supervised 70 officers, providing support and resources to ensure duties and deadlines are met within $23,000 budget
- Successfully recruited Jane Street and DRW into affiliate program, and liaison between all affiliates and UCLA CS Department
- Tutored UCLA undergraduate students in C++ programming by breaking down complex topics and tracing code examples

Entrepreneurship Chair — Apr 2022 – Feb 2023

- Collaborated with committee to organize Hot Ones panel, connecting UCLA alumni entrepreneurs with over 200 UCLA students
- Led team of 3 to organize game night, providing 20 UCLA students networking opportunities with entrepreneurs in the LA area

- Tutored UCLA undergraduate students in C++ programming by breaking down complex topics and tracing code examples

Entrepreneurship Intern **Sep 2021 – Apr 2022**

- Organized product pitch competition and entrepreneurship workshops with ACM and Bruin Entrepreneurs to UCLA students
- Collaborated with Bruin Entrepreneurs club to create competitive analysis workshop and guidelines for product pitch competition
- Tutored UCLA undergraduate students in C++ programming by breaking down complex topics and tracing code examples

Vietnamese Student Union

Fiscal Committee Member **Sep 2023 – Jan 2024**

- Managed Pos and delegated funds for supply and material purchases to ensure 11 committee operate within allocated budget
- Negotiated with UCLA funding bodies and organize fundraisers to raise over $50,000 for annual Vietnamese Culture Night (VCN)
- Documented all payments and reimbursements related to VCN, ensuring balances are paid and account balance stays positive

Traditional Dance Member **Oct 2022 – Apr 2024**

- Collaborated with team members to learn traditional dance choreography by attending weekly, 6 hours practice sessions
- Performed traditional Vietnamese dance choreography for over 1800 attendees at annual culture night and other campus events

Southeast Asian Campus Learning Education and Retention

Peer Mentor **Oct 2022 – Present**

- Provide academic and career guidance to 6 transfer students, ensuring their seamless transition and success from CC to UCLA
- Facilitate mock interviews and resume reviews with 8 engineering students, helping them obtain internship and research roles
- Guide 4 UCLA students on pursuing computer science careers by offering course recommendations and online resources

Fiscal Coordinator **Jan 2024 – Jun 2024**

- Developed comprehensive grant proposals to secure $27,000 and $14,000 from UCLA funding bodies to finance high school and transfer admit programs
- Compiled provisional budget sheets on Excel by analyzing historical program spending data to determine requisite funding
- Facilitated reimbursement requests through UCLA funding bodies and external funding sources for over 150 students
- Issued purchase orders ranging from several hundred to thousands of dollars with local food and clothing vendors

Workshop Facilitator **Oct 2022 – Oct 2023**

- Organized and presented 5 college prep workshops to 175 Southeast Asian high school students and prospective UCLA students
- Educated 175 students on mental health and impact of data aggregation on Southeast Asian populations by facilitating team discussions and interactive activities

PUBLICATIONS

- 21st Century Global and Regional Surface Temperature Projections | doi.org/10.1029/2022EA002662 Dec 2022

CERTIFICATIONS

- UCLA Extension Technical Management Program Sep 2023

HONORS AND AWARDS

- Engineering Award in Student Welfare Jun 2024
- UPE National Scholarship Dec 2023
- Computer Science Wang NSF REU May 2023
- MIT Climate Tech & Energy Prize Feb 2022
- IBM Call for Code Global Challenge | *regional finalist* Oct 2021
- Verizon & CGI U Social Innovation Challenge | *1st place* Sep 2021
- IBM AI Spot Challenge | *2nd place* Aug 2021
- IBM Code Engine Hackathon | *2nd place* Jul 2021
- Howard Hackathon for Environmental Justice | *2nd place* Apr 2021
- Dean's Honors List 20F, 21S, 23W