Gavin Onghai

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SUMMARY

Yale sophomore majoring in EECS with a certificate in Data Science. Originally focused on materials research, now applying a foundation in scientific computing and systems to software engineering and full-stack development. Skilled in Python, C, and Verilog.

EDUCATION

Yale University, New Haven, CT — Expected Graduation 2028

- *BS in* **Electrical Engineering and Computer Science***, Certificate in* **Data Science** | **GPA 3.72/4.00**
- *Relevant Coursework:* Data Structures in C | Computer Engineering | Multivariable Calculus | Physics 1 & 2
- *Awards:* **Hahn Scholarship - top 10 STEM student at Yale** (out of 50,000+ applicants)
- *Activities: Software Developer* - Yale Computing Society | *Fellow* - Yale Entrepreneurial Society | Yale Student Quantitative Finance Organization | *Recruitment Chairman* - Sigma Chi | *Events Coordinator* - Asian-ish *Club*

Earl L. Vandermeulen High School, Port Jefferson, NY — 2024

- ***GPA: 101.54/100 | SAT: 780M, 750EBRW | AP Scholar w. Distinction, 17 APs, 13 scores of 5***
- *Awards:* National Honor Society Scholarship (Top 3.5% nationwide) | Suffolk County Outstanding Senior Science Student | 3x National Latin Exam Gold Medalist | Frey Foundation Renaissance Scholarship
- *Activities: Founder* - Chemistry Olympiad Club | *President* - Science Olympiad | *President* - National Honor Society | *Chief Editor* - Literary Magazine | *Captain* – Tennis | *Captain* - Academic Team | Computer Science Honor Society

RESEARCH EXPERIENCE

Yale School of Engineering and Applied Science, *Hahn Scholar Researcher*, West Haven, CT — Apr 2025 - Present

- Built a lensless imaging system using Raspberry Pi and CMOS sensors; applied ADMM using Python in an object-oriented framework to reconstruct 2D scenes by solving high-dimensional inverse problems.
- Integrated cholesteric liquid crystal films with optical sensors to enable single-shot polarization imaging; used scikit-learn to perform per-pixel regression across 19 waveplate angles and extract Stokes parameters.
- Automated data acquisition using waveplate control scripts and hardware APIs; parsed and structured RGB sensor outputs into NumPy arrays and Pandas data frames for batch processing and analysis.
- Validated system performance by reconstructing known test patterns and visualizing intensity-angle responses using matplotlib, confirming successful ability to determine the degree of polarization.

Simons Summer Research Program, Research Intern, Stony Brook, NY — June 2023 – Sept 2024

- Collaborated with Prof. Ben Hsiao to investigate the catalytic effects of metal oxides on nitro-oxidation of cellulose; synthesized & characterized nanocellulose samples, achieving 15% improvement in yield via catalyst optimization.

Garcia Summer Research Program, Research Intern, Stony Brook, NY — June 2023 – Sept 2024

- Engineered a 3D-printable, conductive, biodegradable filament; Investigated interfacial diffusion behavior between polystyrene and graphene nanoplatelets.
- Publication in **ACS Macromolecules:** *Determination of the interfacial energy between graphene nanoplatelets and deuterated or hydrogenated polystyrene* (Yu-Chung Lin, Xiaoyang Liu, **Gavin Onghai**, et al.).

PROJECTS & LEADERSHIP EXPERIENCE

Yale Computing Society, *Software Developer***,** New Haven**,** CT — Feb 2025 - Present

- Contributed to the development of Yale Menus, a high-traffic dining app platform serving 20,000+ students.
- Maintain and improve the backend Python + Selenium scraping pipeline, ensuring delivery of allergen and meal data.

MIPS Processor with Memory-Mapped I/O, ECE 2011 - Computer Engineering — Apr 2025

- Built and deployed a single-cycle MIPS processor in **Verilog** with memory-mapped I/O on a Basys 3 **FPGA**; demonstrated a crawling snake animation via 7-segment LEDs and earned a perfect score on the final lab practical.
- Resolved a lab-wide issue by converting snake_patterns.asm into Vivado-compatible hex files (insmem_h.txt, datamem_h.txt); enabled successful FPGA programming for the entire class and received extra credit recognition.

Mission Toothbrush 501(c)(3), *Vice President*, Greater Long Island, New York — Aug 2023 – Aug 2024

- Led donation drives and managed operations for a nonprofit distributing $70,000+ in hygiene supplies; oversaw logistics and volunteer coordination for 20+ volunteers; Designed and developed a website, increasing web traffic and outreach by ~10%.

Cedar Hill Cemetery, *Groundskeeper & Pallbearer,* Port Jefferson, NY — June 2023 – Aug 2024

- Assisted in 40+ funeral & burial services, providing support to families during moments of intense grief and emotional hardship.

TECHNICAL SKILLS *(This section can go here or at the bottom of the resume)*

- *Languages:* Python (NumPy, Pandas, scikit-learn, matplotlib), C/C++ , JavaScript, HTML/CSS, Java, Verilog
- *Tools and Systems:* Windows, Linux (CLI), Vivado, VS Code, Git, Bash/Shell
- *Skills:* Low-Level Development, Object-Oriented Programming, FPGA Programming & Simulation, Research & Documentation