

# DAVID HONG

## 3RD YEAR COMPUTER SCIENCE

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### TECHNICAL SKILLS

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**Languages:** Python, Java, C, C++, C#, JavaScript, HTML/CSS, R

**Skills & Technologies:** React, MongoDB, MySQL, Django, Node.js, Git, Express.js, JSON, JUnit, SWIG

### EXPERIENCE

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**Instructor** | *UnderTheGUI* | [Site](#) December 2020 – Present

- Collaborated with a team to develop a 16-week Python, Unity, and Java curriculum
- Designed custom assignments, coding challenges, and sample applications to help students understand key programming principles in game development
- Led over **80 students** aged 8-16, incorporating hands-on coding projects to enhance learning
- Demonstrated strong initiative and adaptability; becoming the first volunteer to be hired as a paid instructor

### PROJECTS

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**Concurrent Traffic** | *Python, C, Pygame, Git, ClickUp, SWIG* | [GitHub](#) | [Demo](#) June - September 2024

- Improved intersection traffic flow efficiency by developing a traffic-light-free road simulator, **reducing simulation time by 57%** as compared to the standard traffic
- Participated in biweekly Agile development sprints and engaged in weekly status meetings, supporting consistent project progression and team collaboration
- Developed a function to update vehicle commands for maintaining safety distance, adjusting speeds and obeying traffic lights, using kinematic equations
- Created a function to compute vehicle direction at a route position using trigonometric calculations for straight and circular edges
- Enhanced simulation flexibility by recreating traffic scenarios using JSON presets
- Planned to transition the existing Python codebase to C using SWIG to improve simulation performance

**Fridgey** | *MongoDB, Express.js, React, and Node.js* | [GitHub](#) | [Demo](#) April 2024

- Decreased average monthly **food waste by 60%** by developing a MERN stack refrigerator management system to tackle food waste caused by unnoticed expiration dates
- Implemented a barcode scanner with QuaggaJS and incorporated it with a barcode API, simplifying item addition
- Designed and implemented a RESTful API using Node.js and Express.js for CRUD operations on grocery items

**LNFT (Let's Not Forget Today)** | *Django, MySQL, Python* | [GitHub](#) | [Demo](#) December – January 2024

- Developed a journal web application using Django framework due to its built-in features like form handling and authentication, leveraging MySQL for database management
- Implemented the MVC (Model-View-Controller) architecture pattern to maintain code organization and scalability in development

**Sustainify (nwHacks 2024)** | *React, JavaScript, HTML, CSS, Git, Figma* | [GitHub](#) January 2024

- Created a React program that prompts users with daily eco-friendly challenges, aimed to contribute to global pollution reduction through achievable tasks and a reward system
- Implemented the fetch API to send POST requests to the **OpenAI API** endpoint, generating three random challenges each day
- Showcased strong communication skills by presenting the final product to judges, highlighting key project outcomes, discussing trade-offs between technologies, and addressing challenges faced

### EDUCATION

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**University of British Columbia (Year 3)**  
*Bachelor of Science in Computer Science*

Vancouver, BC  
*Expected Graduation April 2027*