

# LUCAS SONG

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## TECHNICAL SKILLS

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**Languages:** Java, Python, JavaScript, TypeScript, HTML & CSS, SQL, System Verilog, ARM7/ARMv8

**Tools/Frameworks:** React, Git, SSH, Linux, Jira, NPM, MongoDB, Quartus, LaTeX, MATLAB

## PROFESSIONAL EXPERIENCE

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**Assistant Engineer - Control Systems, Sunlake Co. Ltd.**

June – Sept 2022

*Edmonton Clean Hydrogen Project, Edmonton Refinery Integration*

- Developed Instrument Index Database and Control System I/O List to streamline control system deliverables
- Collaborated with Control Systems Lead Engineer to refine design criteria for plant telecommunication networks and control system architectures
- Enhanced piping & instrumentation diagrams, block diagrams and associated documents to reinforce quality assurance process for engineering projects, contributing 10% reduction in error rate

## TECHNICAL PROJECTS

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**Issue Hound** | *React, JavaScript, HTML & CSS, Node.js, Jest*

Feb 2022 - Present

- Developed bug-tracking application front end with react.js, leveraging state management and interpolation capabilities to create a dynamic user experience
- Engineered project using react-router to reliably guide users navigating through the pages
- Produced automated tests by implementing Jest for components reducing manual testing by 50%

**Pathfinding Visualizer** | *React, JavaScript, HTML & CSS*

Nov 2022 - Present

- Developed intuitive application of Dijkstra and A\* algorithms to identify shortest paths between nodes with 99% accuracy on over 20,000 nodes
- Enhanced user experience by designing responsive grid layouts to handle multiple display sizes
- Transformed application nodes to smoothly transition into personal website using animations and react hooks

**Multi-Client Java server** | *Java, AES, twitter API*

Nov – Dec 2022

- Created an interactive server capable of accommodating multiple client connections and encrypted data streams using AES & Blowfish tech
- Integrated cache which enabled 10x faster access to frequently accessed resources, cutting down API calls by 70%
- Configured & deployed backup routes to sustain service continuity amidst network disruptions

**RISC Processor** | *System Verilog, Quartus, ARM7*

Nov 2022

- Designed and built a 16-bit Turing Complete machine using System Verilog in 3 weeks
- Engineered modular testing to improve component performance by 50%

## ADDITIONAL EXPERIENCE

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**Python Tutoring** | *Python, PyGame*

- Established comprehensive 2-month Python curriculum raising hundreds for COVID relief
- Coached students in developing interactive projects such as Snake & Alien Invaders, fostering their critical thinking and problem-solving capabilities
- Delivered an effective learning plan to enhance student understanding of core concepts and improve student's problem-solving skills, resulting in up to 50% faster solutions

## EDUCATION

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**The University of British Columbia**

Anticipated 2025

Bachelor's Degree of Applied Science, Computer Engineering

**Coursework:** Software Construction, Computer Hardware, Data Structures and Algorithms, Math Proofs, Linear Algebra