

## OBERT GUO

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### SUMMARY OF QUALIFICATIONS

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- Four year proficiency in C/C++ and Javascript/Typescript through embedded hardware and full-stack projects, and two year working familiarity with Python, Java, C#, MongoDB
- Knowledge of tools and frameworks including Node JS, React, Vue, Express JS, Webpack, MongoDB, .NET, Git to support project development in Windows and Linux environments
- Excellent work ethic, time management, clear communication, and teaching skills from two year instructor experience
- Comprehensive and concise technical writings by creating documented code and project outlines, and instructor lesson plans
- Strong mathematical and problem solving skills after placing in top categories in math contests in last five years

### EDUCATION

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<b>Candidate for Bachelor of Mathematics, Honours Co-op</b>	University of Waterloo	Sept. 2022 - Present
<b>Relevant Courses</b>	Functional Programs, Algorithm & Data Abstraction, Interpersonal Communication	Expected: Spring 2027

### EMPLOYMENT & VOLUNTEER EXPERIENCE

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<b>Mathnasium</b>	<i>Mathematics Instructor</i>	London, ON	Aug. 2021 - June. 2022
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- Instructed elementary and highschool mathematics to fifteen students per session, yielding grade improvement in mathematics at school
- Provided intuitive, concise, and creative explanations for students' questions and problems, and discussed improvement to explanations with instructor team
- Advised instructor team to determine how to efficiently assist students, and identify student weaknesses

<b>City of London</b>	<i>Badminton Instructor</i>	London ON	Jan. 2018 - March. 2018 & Sept. 2017 - Nov. 2017
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- Managed twenty children in grades one to five, and provided a safe and positive environment
- Planned and instructed engaging weekly badminton lessons over twelve weeks, leading to student improvement in their badminton games
- Encouraged children with their learning of the sport and gave constructive feedback

### RELEVANT PROJECTS

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<b>3D Rendering Engine</b>	<i>Typescript, Webpack, Python, HTML</i>	Dec. 2022 - Jan. 2023
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- Created HTML 3D renderer in Typescript to render orthographic projections with diffuse shading from object data
- Produced linear algebra wrapper to apply object transformations, including rotation, scaling, and translations
- **Challenges:** Understanding rasterization, Z-buffers, and computations to determine pixel depth, and triangle-point collision using Barycentric coordinates

<b>Comics API &amp; Reader</b>	<i>Typescript, Node JS, Express JS, React</i>	June. 2022 - July. 2022
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- Programmed backend Express server REST API with routes for retrieving comic search results, details, and page images
- Developed frontend React website and integrated with backend API, creating a user friendly online comic reader

<b>Arduino Hat Dot Matrix Display</b>	<i>C++, Typescript, React</i>	Sept. 2021 - Jan. 2022
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- Co-developed dot matrix hat display by creating portable C++ codebase for Arduino MCU to show user created images with directional scrolling
- Implemented pixel drawing tools for creation of user designed images as a React website
- **Challenges:** Writing code for Arduino's limited program memory, creating efficient pixel shift algorithms for 1D pixel-buffer over traditional 2D pixel-buffer, and buffering file data from SD card onto Arduino