# William **Paterson**

SOFTWARE ENGINEER

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## Skills

**Back-end**   REST API · SQL · MongoDB · Spring Boot            **DevOps**   Git · Docker · Google Cloud · Batch

**Front-end**   HTML5 · Bootstrap CSS · Thymeleaf · JavaScript · JQuery   **Programming**   Java · Python · C++ · C# · OpenGL · GLSL

## Education

### The University of Newcastle                                    *Callaghan, NSW*

BACHELOR OF SOFTWARE ENGINEERING (HONOURS)                          *2018 - 2023*

- Expected Completion is 2023
- Completed Supplementary Computer Graphics Course in 2021

NEWSTEP                                                             *2017*

- Completed to gain required ATAR score to be accepted into Bachelor of Software Engineering (Honours)

### Newcastle High School                                          *Hamilton South, NSW*

HIGHER SCHOOL CERTIFICATE                                           *2016*

- Completed Certificate 1 in Metals and Engineering

## Experience

### Applied Virtual Simulation                                     *Broadmeadow, NSW*

JUNIOR SOFTWARE DEVELOPER                                           *Jan 2023 to Present*

- Following internship, started a casual position while finishing studies
- Developed and configured content to support LSCore 2.0, An updated high fidelity military simulation for the Australian army.
  - Contributed to the development of Lua based unit behaviour scripts
  - Contributed to the development of Electron based Vue configuration tool
  - Wrote and Researched high quality design documents for customer approval

SOFTWARE ENGINEER INTERN                                           *Aug 2022 to Dec 2022*

- Completed a 12 week full time equivalent internship as a required of Software Engineering Degree

### McDonald's                                                     *Williamtown, NSW*

OVERNIGHT CREW MEMBER                                              *Feb 2015 to Jan 2023*

- Excellent multitasking with minimal crew members. Providing training and direction to new and existing crew members.
- Following safe work practices, such as wearing Personal Protective Equipment when cleaning high temperature oil vats.
- Performing full store cleaning to prepare to day shift.
- Efficient and hygienic food preparation for customers.
- Ensuring customer satisfaction by completing orders correctly and swiftly.
- Acquired excellent communication skills though customer interactions.

## Projects

### Capstone Project · Custom Web Based Microscope Slide Viewer     *The University of Newcastle*

TYPESCRIPT · REACT · EXPRESS · MATERIAL UI · MONGODB · OPENSEADRAGON · DOCKER     *2023*

- Completed as part of the final year project thesis for Bachelor of Software Engineering (Honours).
- Built for the University of Newcastle's LDTI (Learning and Teaching Digital Innovation) team to be used by Medical Students at the University of Newcastle.
- A successfully tested implementation which included features such as zooming, panning, navigation, annotations, and filtering options for high-resolution digital images was developed.
- Followed a hybrid waterfall and iterative development model. With regular client meetings and feedback.
- High resolution images are loaded from an AWS S3 bucket, metadata is stored in a MongoDB database and seamlessly displayed to the user using OpenSeadragon.
- Annotorious was used to implement annotations. Annotations are stored locally in the browser and can be exported as a JSON file.
- A backend REST API was built using Express to query the MongoDB database.

### Cloud Pub/Sub Messaging Prototype with Cloud Endpoint          *The University of Newcastle*

GOOGLE CLOUD · JAVA · SPRING BOOT · THYMELEAF · BOOTSTRAP CSS · JQUERY · DOCKER     *2022*

- Implemented a prototype messaging system using Google Cloud Pub/Sub Topics.
- The Publisher was run in Google Cloud Run. The Subscriber was run in Google Cloud Functions.
- The Publisher continuously publishes messages to the Pub/Sub topic. The Subscriber then receives the message.
- The message is sent from the subscriber to a remote endpoint. This endpoint was built using Spring Boot, Thymeleaf and Bootstrap CSS
- The endpoint stores the messages and displays an automatically updated results table using JQuery

**3D OpenGL Game**                                                                                                    *The University of Newcastle*

Java · LWJGL · OpenGL · GLSL                                                                                                      *2021*

- Created a 3D OpenGL game from scratch using Java and LWJGL. Implemented GPU shaders with GLSL.
- Incorporated Phong shading for lighting, Basic GPU particle system with bill boarded textures.
- Also implemented Shadow maps with Depth Bias and Normal Offset to compensate for Peter Panning and Shadow acne.
- Included 3D camera movement and flight sim like model following camera.

# Volunteering

**Scouts Australia**

Venturer Scout

- Participated in the organization for around 10 years.
- Interacted with the community through car wash fundraisers and community gardening efforts.
- Leader of group activities and events.
- Developed excellent interpersonal skills

# Certificates

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|---|---|
| 2022 | **Provisional P2 Australian Motorcycle Rider's Licence** |
| 2021 | **College Commendation List** College of Engineering, Science and Environment |
| 2018 | **Full Unrestricted Australian Driver's Licence** |
| 2015 | **Certificate 1 in Metals and Engineering** |
| 2014 | **White Card course** |