

# WONG PEI XIAN

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## EDUCATION

### National University of Singapore

Bachelor of Computing (Comp. Sci.), Focus in Computer Graphics & Games, Parallel Computing  
GPA: 4.83, DEAN'S LIST

Aug 2020 – Present  
Singapore

## SKILLS AND RELEVANT COURSEWORK

### General Programming Languages:

C++, Rust, Python, C#, Javascript/Typescript, C, Java

### Shader Languages: GLSL, HLSL

**Game Engines:** Unity, Unreal Engine 4.0, Ubisoft Anvil

**Databases:** MongoDB, PostgreSQL

**Web:** React Node, ExpressJS, HTML/CSS, Websockets

**Environments:** Windows, Linux

### Graphics/Parallel Computing API:

OpenGL, CUDA, DirectX11, Vulkan, WebGL (three.js)

## EXPERIENCE

### Squarepoint Capital

Software Development Intern | [C++20](#), [ProtoBuf](#)

- Building a metrics module for general use as part of an application framework for in-house services.

Jan 2024 – Present  
Singapore

### Ubisoft

Technical Art Intern (on unannounced AAA title) | [C#](#), [C++](#), [Python](#)

- Built in-engine tools with Windows WPF UI (C#, XAML) for speeding up artists' workflow.
- Supported asset management, validation and documentation with core development team.

Aug 2023 – Nov 2023  
Singapore

### EAS-AI

Backend Software Developer, DevOps, MLOps | [Rust \(tokio, axum, criterion\)](#), [PostgreSQL](#), [Python \(locust.io\)](#)

- Designed and built a search engine for large document collections ingested from companies' existing internal databases.
- Combined Machine Learning models and custom implementations of traditional lexical search algorithms for indexing of documents.
- Implemented the pipeline for document ingestion, processing, encoding, storage and lookup, ensuring the scalability, performance of the multithreaded server and cross-domain accuracy of the search engine.

May 2023 – Aug 2023  
Singapore

### Google

Intern Backend Developer | [Python](#), [gRPC](#)

- Designed and implemented a bug diagnosis RPC service to parse modem device logs and Android Debug Bridge bug reports to identify common bugs.
- Delivered unit tests and integration tests to ensure the service works across the internal network.

May 2022 – Aug 2022  
Taiwan (remote)

### BODYX Productions [live-app]

Fullstack Web Developer, DevOps | [Typescript](#), [MERN](#), [Websockets](#)

- Stack:** MongoDB, ExpressJS, ReactTS, NodeJS (MERN), next.js, Websockets (sockets.io), Docker (Ubuntu 20.04)
- Designed, built and deployed a real-time web app from scratch, supporting chat functionality and interactive room controls designed for experiential theatre, REST API for user management and integration with EventBrite.
- Deployed server with NGINX as reverse proxy and TLS Configuration with LetsEncrypt.

Dec 2021 – May 2022  
Singapore

### Teaching Assistant (Various Modules)

Student Tutor | [Intro to Graphics](#), [Intro to Algorithms](#)

- CS3211 Parallel and Concurrent Programming** – Designing assignments for maximizing parallelism in a restaurant simulator.
- CS4247 Graphics Rendering Techniques** – Includes multi-pass rendering, deferred shading, shadow mapping, path tracing, PBR and radiosity.
- CS3241 Computer Graphics** – Includes graphics pipeline, rasterization, texture mapping, raytracing [[Slides](#)].
- CS2040S Data Structures and Algorithms**

Jan 2022 – Present  
Singapore

## PORTFOLIO

### Neural Radiance Fields (NeRF) research (ongoing) | [Python](#), [C++](#), [CUDA](#)

- Exploring merging machine-learning driven NeRF volume rendering with traditional mesh object pipelines.
- Aims to place virtual objects in NeRF environments with correct direct/indirect lighting interactions.

Jun 2023 – Present

**Student of the Year – Tan Eng Kiam Awards Finalist [link]** | NUS Arts Production Crew Executive Committee member

Oct 2023

**Doodle's Diary – A tower defence game [itch.io]** | [Unity](#), [C#](#), [HLSL](#)

Feb 2022 – Nov 2022

**CodeITSuisse Challenge 2021** | [Python](#) | Team 6<sup>th</sup>

Sep 2021

**A New Lower Bound for Young's Cosine Series [FLW19]**

Jul 2017 – Feb 2019

## LEADERSHIP

### ExxonMobil Campus Concerts (EMCC) Crew

Training Director

- Planned and coordinated a comprehensive training program in technical theatre management and technology.
- Trained beginners in stage lighting technology and board programming on GrandMA2.

Aug 2022 – May 2023  
National University of Singapore

## PUBLICATIONS

[FLW19] J. Fong, T. Lee, and P. Wong. "A functional bound for Young's cosine polynomial". In: *Acta Mathematica Hungarica* 160 (June 2019). doi: 10.1007/s10474-019-00960-3.