

Lum Ko Sand

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EDUCATION

Singapore Institute of Technology – DigiPen Institute of Technology Singapore

Bachelor of Science with Honours in Computer Science in Interactive Media and Game Development
August 2023 – April 2027

Nanyang Polytechnic

Diploma in Game Development & Technology
April 2018 – March 2021

Institute of Technical Education

Higher Nitec in Games Programming & Development
April 2016 – March 2018

Nitec in Social Media & Web Development
January 2014 – December 2015

WORK EXPERIENCE

DBS Bank – Software Engineer Intern

May 2026 – Present | Singapore

- Design, develop, and implement automated test cases for new and existing features using chosen automation tools and frameworks.
- Review current manual test cases to identify automation opportunities, increasing efficiency and coverage.
- Execute automated tests, analyze results, and report defects with clear, reproducible steps.

Dnasok Games – Game Developer (Self-Employed)

October 2021 – March 2026 | Singapore

- Independently designed and developed indie games using Unity (C#), including Tiny Arcade Racers, available on Steam and Google Play Store.
- Managed all aspects of game development from concept, programming, design, testing, to publishing.
- Built strong problem-solving and diagnostic skills through self-driven end-to-end development.

VizioFly (Virtual Reality Singapore) – Software Engineer Intern

June 2020 – August 2020 | Singapore

- Contributed to immersive AR/VR development for corporate, tourism, and educational clients, building interactive media content using Unity and C#.
- Designed and implemented responsive UI elements that prioritized user experience and device compatibility across desktop and mobile platforms.
- Identified and resolved bugs, optimized performance, and contributed to version updates for key product releases.

Viswire – Software Engineer Intern

October 2017 – December 2017 | Singapore

- Assisted in developing real-time simulation systems for professional training and research, focusing on visual realism and performance efficiency.
 - Built and tested core simulation features in Unity, with a strong emphasis on accuracy, latency minimization, and user interactivity.
 - Engaged in full-cycle development including feature prototyping, testing, debugging, and deployment.
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RELEVANT PROJECTS

Machina (3D Custom Engine + Game, Technical Lead)

- Led the technical development of a 15-member multidisciplinary team, driving architecture decisions, coordinating cross-functional workflows, and ensuring a stable, production-ready 3D custom game engine.
- Developed and enhanced engine tools and editor features, including an animation editor, asset management pipeline, and editor UX improvements, accelerating content iteration and improving engine usability.
- Collaborated across programming, design, and art to improve level design, debugging, profiling, code quality, and runtime stability, delivering a polished first-person puzzle-platformer experience.

Ukemochi (2D Custom Engine + Game, Technical Lead)

- Led the technical development of an 8-member multidisciplinary team, defining engine architecture and guiding development of a custom C++ 2D game engine from concept to production.
- Designed and implemented core engine systems, including physics, collision detection, mathematics, transformations, dungeon management, gameplay management, and in-game UI to support scalable gameplay.
- Collaborated with designers and artists to integrate engine tools with gameplay systems, enabling responsive combat, dynamic dungeon generation, and a polished player experience.

Tiny Arcade Racers (Unity Engine C#, Indie Game)

- Built and published a 2.5D top-down arcade racing game in Unity, featuring AI opponents, multiple racing modes, vehicle customization, and cross-platform releases on Steam and Google Play.
 - Developed core gameplay systems, AI behavior, and responsive vehicle controls using C#.
 - Optimized performance and gameplay for both PC and Android platforms.
 - Designed race tracks and gameplay mechanics to deliver an engaging arcade racing experience.
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NATIONAL SERVICE

Singapore Police Force – Protective Security Command Trooper

May 2021 – May 2023 | Singapore

- Conducted patrols and safeguarded key installations at security-sensitive sites.
- Secured Critical Infrastructure and supported major national events.
- Awarded Best in Operational Fitness and developed leadership, teamwork, and communication skills in high-pressure environments.

CERTIFICATIONS, AWARDS AND CO-CURRICULAR ACTIVITIES

- GitHub Foundations – Microsoft (July 2026)
 - Google IT Support Professional Certificate – Google (July 2026)
 - Google AI Professional Certificate – Google (July 2026)
 - Unity Certified Associate: Game Developer – Unity (March 2021)
 - Distinction in Business for Digital Media Industry and in Principles of Game Design.
 - Director's List recipient at Institute of Technical Education.
 - Active participation in student game clubs and competitions, providing guidance to members.
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SKILLS

Programming Languages

- C++, C#, Python, Scala, JavaScript/TypeScript

Game Development

- Unity Engine, Custom Game Engine Development, Gameplay Programming, Game Physics, AI Systems, 2D/3D Game Development, Level Design, UI Systems

Software Engineering

- Data Structures & Algorithms, Object-Oriented Programming, Software Testing, Debugging & Profiling, CI/CD, Technical Documentation

Tools & Frameworks

- Git, GitHub, Bitbucket, Visual Studio, Jenkins, Jira, Angular, Amazon S3

Graphics & Interactive Media

- Computer Graphics, Linear Algebra, Virtual Reality (VR), Augmented Reality (AR), Unreal Engine

AI & Emerging Technologies

- Generative AI, Prompt Engineering, AI-assisted Development Tools