

# Ang Zhe Hao (Nicholas)

<https://github.com/nicholassang/> • nicholassang.2024@computing.smu.edu.sg

<https://nicholassang.com/> • +65 85080360 • https://www.linkedin.com/in/nicholas-ang-zhe-hao/

## EDUCATION

### Singapore Management University, GPA: 3.41/4.0

Bachelor of Science in Software Engineering

Aug 2024 – May 2028

**Coursework:** Algorithms and Programming, Advanced Databases, Web Application Development

## TECHNICAL SKILLS

- Languages: Python, C++, Java, Typescript, Javascript, PHP, SQL, CSS, HTML
- Frameworks & Tools: React, Vue, Node.js, Express, FastAPI, Springboot, AWS, Tailwind CSS, Git, Postgres
- Certifications: AWS Certified Solutions Architect - Associate, AWS Certified Developer - Associate

## PERSONAL PROJECTS

### Real-Time Multiplayer Card Game | TypeScript, React, Node.js, Express, WebSockets, AWS EC2, DynamoDB | [GitHub](#) | [Website](#)

- Architected a server-authoritative 1v1 real-time game engine to ensure deterministic state transitions and eliminate client desynchronization
- Implemented 20 FPS synchronization over WebSockets, resolving concurrent player actions on the backend
- Designed REST APIs (API Gateway + Lambda) for persistent match storage in DynamoDB
- Deployed on AWS EC2 with Nginx reverse proxy and SSL; load-tested to support 100+ concurrent connections
- Implemented in-memory matchmaking queue with planned migration toward distributed/persistent architecture for scalability

### Global Movie Location Explorer | Python, FastAPI, Selenium, AWS Lightsail, Docker Compose, PostgreSQL | [GitHub](#) | [Website](#)

- Built an automated ETL pipeline to scrape and normalize 300+ global filming locations from IMDb
- Geocoded and stored structured data in PostgreSQL with indexed query optimization
- Exposed REST APIs via FastAPI for data retrieval and aggregation
- Containerized services using Docker Compose and deployed on Linux-based AWS Lightsail with SSL and cron-based data refresh (6-hour intervals)

## RELEVANT COURSEWORK & HACKATHONS

### Facial Recognition GUI | Coursework | Java, Springboot, OpenCV, ONNX (ArcFace), Apache POI | [GitHub](#)

- Collaborated on modular attendance system with separated detection, embedding, and recognition services
- Built reporting subsystem (CSV, Excel, PDF) with structured logging and database-backed audit tracking

### Social Calendar Platform | SMU .Hack HEAPS Programme | React Native, Node.js, Express, PostgreSQL | [GitHub](#)

- Led a 5-person team over 3 months, coordinating weekly milestones for multi-calendar social platform
- Built calendar event system from scratch supporting drag-and-drop, recurring events, and multi-calendar toggling
- Implemented event persistence and filtering across users' calendars

### SchoolFinder Application | Coursework | Vue, Node.js, Express, Google Maps API, Google Cloud Platform | [GitHub](#)

- Displayed 500+ school locations with interactive markers, tooltips, dynamic filters, and route tracking
- Reduced redundant requests by >90% and prevented excessive cloud costs with frontend-caching and optimized API calls

## LEADERSHIP & VOLUNTEERING

### President | SMU Strategica Board Games Club | 2026

- Led an 8-member team to organize weekly events for 70+ members
- Coordinated club operations, organized roadshows, and liaised with external partners

### Operations Director | Special Interest & Community Service Sodality Camp | 2025

- Managed a 5-member team for administrative proposals covering safety and food
- Scheduled participant groups for a 2D1N camp for 99 participants, ensuring smooth logistics

### Operations Director | Voice Personality Hunt Competition | SMU Broadcast and Entertainment | 2025

- Liaised with multiple departments and led a 4-member team to set up production environment
- Oversaw logistics for finals and semi-finals, ensuring timely and safe execution

### Deputy Operations Director | Arts and Cultural Fraternity Camp | 2025

- Managed meal planning and food orders over 3 days for 127 participants
- Served as main officer-in-charge for general safety and incident reporting

### Volunteer | SMU Project Kidleidoscope | 2024

- Conduct learning activities for primary school students