

Bernardinus Matteo Woenardi

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SUMMARY

Penultimate-year Computer Science student with 2+ years of full-stack software engineering experience across robotics, cloud infrastructure, and data systems. Proven ability to build and ship software across academic and professional settings using Python, Java, and modern web frameworks. Seeking summer software engineering internship to build scalable systems with measurable user impact.

TECHNICAL SKILLS

Languages: Java, Python, C, SQL (MySQL, Postgres), NoSQL (MongoDB, Redis), JavaScript, HTML, CSS
Frameworks: React, React Native, Streamlit, Flask, Django, FastAPI, Spring, Next.js, Node.js, Three.js
Developer Tools: Git, Docker, Kubernetes, ArgoCD, GitHub Actions, Expo, AWS, Vercel

SELECTED PROJECTS

Emergency Dispatch App | *Flask, Python, RabbitMQ, GitLab, Kubernetes, ArgoCD, Docker*

- Built microservices-based emergency application with event-driven architecture in AWS (RDS/SNS) and RabbitMQ, including third-party API integration (Google Maps, Stripe)
- Developed end-to-end CI/CD pipeline GitLab CI with automated unit & integration tests (pytest/jest) and security scans (trivy); deployed to Kubernetes with ArgoCD GitOps with declarative manifests and drift detection
- Configured Kubernetes manifests for Deployments, Services, Ingress with HPA for simulated load scenarios; automated cluster bootstrapping with Bash & Batch scripts for Minikube setup

WLASL Translation App | *OpenCV, MediaPipe, Python, Django, React Native, Expo*

- Created full-stack mobile application utilizing computer vision model (OpenCV, MediaPipe) and OpenAI API to translate Word-Level American Sign Language into subtitles; recognized with People's Choice Award
- Architected local-first design for Django REST API, handling model integration and video storage
- Developed React Native (Expo) mobile app handling video I/O, local HTTP with Django backend

PROFESSIONAL EXPERIENCE

Student Assistant - Analytics & Automation

Nov 2025 – Present

SMU Academy

Singapore

- Engineered venue allocation pipeline with automated error detection for 10K+ rows using Pandas & NumPy in Jupyter Notebook; achieved 90% speedup (90s → 10s) through Pandas vectorization

Software Intern

May 2025 – Aug 2025

KABAM Robotics

Singapore

- Developed frontend capabilities for distributed robot control system supporting live operations of 100+ unit fleet: 33 features shipped, 35 bugs resolved, 6 Proof-of-Concepts evaluated (React, Redux, Three.js)
- Built real-time video streaming infrastructure: Python server automating RTSP→HLS transcoding via GStreamer, enabling browser-based 3D visualization (Three.js, React Three Fiber) of live CCTV feeds
- Reduced stream rendering latency by 40% for remote robot operators: profiled with react-three-fiber-perf and Chrome DevTools; optimized via batching geometry instancing and texture definition

Research Assistant - Full-stack Development

Sep 2024 – May 2025

M3S Singapore-MIT Alliance for Research and Technology

Singapore

- Architected full-stack transport analytics site serving data from 100+ cities (Next.js, FastAPI, Supabase, AWS)
- Reduced map generation latency by 80% (50 → 10 minutes per city) by implementing selective indexing (Python, Rasterio, and Networkx) for 100+ GB geospatial datasets
- Cut infrastructure costs by 95% (\$14 → \$1.50 per month) by designing on-demand serverless ETL pipeline with AWS Lambda, Batch, Step Functions, S3, and API Gateway in place of always-on infrastructure

EDUCATION

Singapore Management University

Singapore

Bachelor of Science in Computer Science, Major in Artificial Intelligence; GPA: 3.57/4.0

Aug 2023 – May 2027