

Abhishek Vulla

+65 8974 9376 | abhishek.vulla@gmail.com | abhishekvulla.com | LinkedIn | GitHub

SELECTED PROJECTS

LearnLoop — AI-Native Learning Management System | [Site] | [Demo]

Dec 2025 – Present

Baby Shark Fund (\$\$2K) · Listed in SGTech × SSG × SUTD government report

TypeScript, React, Node.js, PostgreSQL, OpenAI GPT-4.1, pgvector, Google Cloud Storage, Railway

- Built end to end: vision-language models read multi-page handwritten homework and link every mistake back to the lecture slide that teaches it. A retrieval-grounded tutor (RAG, pgvector) answers only from cited course material. Piloted with **40 students** across two classrooms; 50-student pilot confirmed for Sep 2026.
- Cleared the university's enterprise review by changing the product, not arguing the bar down: killed public signup, moved identity to SUTD SSO over LTI 1.3, cut LMS access to least privilege. The quoted **\$57,000 penetration test** was waived because the public app it assessed no longer existed.

Rankr — AI SEO/GEO Agent for SMEs | [Site] | [Demo]

Apr 2026 – Present

UCWS Hackathon 2026 Finalist (Top 20 of 800+, US\$10K OpenAI credits) · Baby Shark Fund (\$\$2K)

trigger.dev, LangChain, GPT-4, Supabase, Next.js, Tailwind CSS, Vercel

- Signed **2 SME letters of intent** before writing code, then co-built an AI agent that runs the full SEO loop for SG SMEs: mines Reddit and competitor pages for the questions buyers actually ask, then writes and publishes articles that interlink into topical clusters.
- Built the knowledge graph over each client's content so the agent reasons across articles instead of one at a time, with per-client memory and long-running research orchestrated on trigger.dev.

Proof — AI Launch-Video Generator | [Site] | [Demo]

Jun 2026 – Present

1st Runner-Up, 'Sup Build2026 Hackathon (300+ builders, \$5K+ in prizes) · Live in invite-only beta

Next.js, TypeScript, Remotion, Whisper, ffmpeg, Docker, Railway, Supabase, OpenAI

- Built the render pipeline that turns a GitHub repo into a launch video: Octokit pulls the codebase, an LLM writes the script, then Whisper word-level timestamps drive automatic dead-air cutting and frame-accurate captions.
- Load-tested render concurrency rather than guessing: two parallel jobs ran **20% faster**, three exhausted memory and crashed ffmpeg, so the pipeline caps at two and queues the rest. Built a vision-QA loop where a model reviews rendered frames and re-renders failures, removing the manual eyeball-and-retry pass.

Clicky for Windows — Voice AI Desktop Assistant | [Demo] | [GitHub]

Apr 2026

Top 3, OpenAI-sponsored PyCon SG Hackathon 2026

Python, PyQt6, ctypes (Win32), AssemblyAI, Cartesia, ElevenLabs, PyInstaller

- Cut voice-AI first-audible-word latency **54% (3.7s to 1.7s)** by parallelizing STT, screen capture, and memory on hotkey release, then streaming TTS sentence-by-sentence with an HTTP double-buffer.
- Designed per-app memory as plain Markdown + SQLite instead of a vector DB (Karpathy's LLM-Wiki pattern), with prompt caching to cut token cost, and shipped multi-provider LLM support behind one abstraction. Open-source, **100+ installs**, 431 tests + CI.

SUTD Deadline Centre — Chrome Extension (Manifest V3) | [Web Store] | [GitHub]

Nov 2025

TypeScript, React, Vite, Chrome APIs

- Shipped a Chrome extension in one week that consolidates eDimension + Gradescope deadlines into a unified dashboard with .ics export; adopted by **50+ SUTD students** across 6 releases.

AWARDS & COMPETITIONS

SpillTeaLeh — 1st Place, Build for Impact 2026 (SGInnovate, IMDA, AISG, OpenAI) | [Link]

\$59,500 · 130+ builders

Next.js, React, Three.js, SEA-LION API, OpenAI Sora, Tailwind CSS, Cloudflare Workers

- Netflix for running: co-built a browser-based 3D game where a multi-API pipeline (Cloudflare Workers, SEA-LION, OpenAI Sora) generates Singlish narration and AI video rewards at distance milestones.

NUS Maritime Hackathon 2026 — 2nd Runner-Up (SMF, RightShip, Databricks) | [Report]

\$52,000 · 670+ Participants

- Built a 16-check validation pipeline over our mixed-integer linear programming (MILP) fleet model (SciPy) that **caught a \$5256K discrepancy** before submission.

Yoda — Top 5 Finalist, Dell InnovateDash 2026 (Care Corner) | [Demo] | [GitHub]

May – Jun 2026

Python, MCP, DeepSeek, XIAO ESP32-S3, Next.js, Neon, OpenAI

- Wrote the full stack for an AI pendant seniors talk to instead of an app: custom ESP32-S3 firmware (on-device wake word, I2S audio, camera) and a Python MCP server exposing **8 voice-callable tools**, where every action becomes a request a caregiver approves before it executes.
- Traced dropped wake-words to a 2s TLS handshake starving the on-chip detector and throttled the poll to keep it always-on.

LEADERSHIP & COMMUNITY

Microsoft Learn Student Ambassador (2026) | 1st Place, Microsoft Learn Hack and Fun

Mar – Jun 2026

Won with PilotBot, a Copilot go-to-market strategy built in 40 minutes against Microsoft's own brief. Ran outreach and hands-on Copilot sessions for SG students.

iDeA AI Fluency Instructor — SUTD Freshmore Programme

Jan – Apr 2026

Designed and delivered AI-assisted coding and CAD workshops to **100+ freshmen**; progressed from participant to instructor within one term.

President's Challenge — D.A.R.E. Community | SUTD Mentor

Jan – Mar 2026

Directly mentored **6 of 24 ITE students** from disadvantaged backgrounds (40 hours, 10+ sessions), coaching independent problem-solving over giving answers.

EDUCATION

Singapore University of Technology and Design (SUTD) — BEng Computer Science & Design (CSD)

Sep 2025 – May 2029

Undergraduate Merit Scholar · Technology & Entrepreneurship Programme Award (USTEP), 1 of 20 from a cohort of 580

Available for full-time internship: 24 Aug 2026 – 24 Jan 2027 (5 months)

SKILLS

Languages: Python, SQL, TypeScript, JavaScript

AI/LLM: RAG (pgvector), Vision-LLM OCR, agentic tool-calling, Model Context Protocol (MCP), LangChain

Frameworks & Infrastructure: Next.js, React, Node.js, FastAPI, trigger.dev, PostgreSQL, Supabase, Docker, Vercel, Railway

Testing & Automation: pytest, Playwright, GitHub Actions (CI/CD), n8n