

Abhishek Vulla

+65 8974 9376 | abhishek.vulla@gmail.com | linkedin.com/in/abhishek-vulla | github.com/AbhishekVulla | Singapore

PROJECTS

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

Dec 2025 – Present

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

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

- Built LearnLoop end to end: vision models read multi-page handwritten homework and link every mistake back to the exact lecture slide that teaches it, on top of a retrieval-grounded (RAG, pgvector) tutor that answers only from cited course material. Piloted with **40 students** across two classrooms; 50-student pilot confirmed for Sep 2026.
- Cleared the university's full **enterprise review** to get it running inside the live LMS over LTI 1.3: security assessment, data-protection sign-off, and least-privilege access negotiated with the EduTech team.

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 (S\$2K) · Signed 2 SG SME LOIs

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

- Validated demand and signed clients 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. **2 signed SG SME clients.**

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

Jun 2026 – Present

1st Runner-Up, 'Sup Build2026 Hackathon (300+ builders, S\$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.
- Cut per-job render time 20%** by load-testing concurrency to find the real ceiling instead of guessing, and built a vision-QA loop where a model reviews rendered frames and re-renders the 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, **90 downloads**, 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]

130+ builders · S\$9,500

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]

S\$2,000 · 670+ Participants

- Built a MILP fleet-optimization model (SciPy) and a **16-check validation pipeline that caught a S\$256K discrepancy** in our own model 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

Drove Microsoft Copilot adoption among SG students through outreach and hands-on sessions, growing awareness and usage across campus.

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)

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, voice AI latency optimization

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

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