

Raghav Rajesh

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EXPERIENCE

ClubSync

Feb 2026 – Aug 2026

Backend Developer

Singapore

- Shipped a Next.js/React/TypeScript web app for membership, payments, and attendance across 90 SUTD clubs.
- Designed role-based access control with Firestore Security Rules and server-side Firebase Cloud Functions.
- Built an OCR pipeline verifying PayNow receipt screenshots against member fee records to automate approval.

pitchMe

Jan 2026 – Jun 2026

Technical Researcher

Singapore

- Reduced per-run cloud analysis cost by 80–90%, from \$0.50–\$1.00 to under \$0.10, by shifting MediaPipe processing to the browser and adopting a late-fusion small-language-model architecture.
- Implemented a multimodal video-analysis pipeline extracting speech, body-language, and delivery cues to generate structured, actionable presentation feedback.

SELECTED PROJECTS

ShuttleBuddy | Python, Telegram Bot API, Gemini API, SQLite, Raspberry Pi

2026

- Automated the fee collection I ran as SUTD Badminton Club Treasurer: a Python Telegram bot issues per-member PayNow QR codes and auto-verifies payment screenshots, replacing manual chasing and bank reconciliation.
- Combined Gemini API vision extraction with deterministic Python verification and an SQLite receipt-fingerprint store to reject duplicate or altered receipts.
- Deployed the bot 24/7 on a Raspberry Pi 4 with scheduled reminder and audit jobs.

SUTD Calendar Bot | Python, Selenium, CustomTkinter, PyInstaller

2025 – 2026

- Automated SUTD timetable extraction with Selenium, stepping through the portal's weekly calendar grid and exporting .ics and .csv files for Google and Apple Calendar, used by over 150 students in the school.
- Built a CustomTkinter desktop app with interactive conflict resolution for overlapping classes, course renaming, and class-type filters, shipped as a standalone PyInstaller executable for non-technical students.

Dodge the Lasers | Python, OpenCV, MediaPipe, NumPy, PyGame

2026

- Built a full-body motion-controlled game for the SUTD Open House 2026 exhibit, segmenting visitors from a live webcam feed with MediaPipe and rendering them as silhouettes dodging spawned lasers.
- Threaded camera capture and ML inference, vectorising collision detection with NumPy for a stable 30 FPS.

WanderBin | C++, ESP32, Arduino, PlatformIO, REST API

2025 – 2026

- Programmed the ESP32 firmware in C++ for an autonomous recycling bin, hosting its own WiFi access point and JSON REST API so the companion web app could drive the hardware with no router or internet.
- Gated a servo lid on ultrasonic hand detection plus the app's recyclable verdict, voiding approval after each open.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C/C++, SQL, HTML, CSS

Frameworks & Libraries: Next.js, React, Node.js, Selenium, OpenCV, MediaPipe, NumPy, Pandas

Data, Cloud & DevOps: Firebase, Firestore, SQLite, GCP, Cloud Functions, Linux, Git

AI/ML & Hardware: LLMs, RAG, OCR, ESP32, Raspberry Pi

EDUCATION

Singapore University of Technology and Design (SUTD)

2025 – 2029

B.Eng. Computer Science and Design

Singapore

St Andrew's Junior College

2021 – 2022

GCE A-Level

Singapore

AWARDS & LEADERSHIP

- **Leadership:** Founder & President, SUTD Toastmasters Club; founded SUTD's first Toastmasters-affiliated club, registered it under the Office of Student Life in one trimester, and grew it to 50+ active participants.
- **Awards:** Maritime Hackathon; 2nd Runner-Up, Hack4Health Hackathon; 1st Place