Akshay Reddy Gujjula

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Profile

Second-year Computer Science student at UCL, graduating 2028, building full-stack, ML and performance-sensitive systems. **2× hackathon winner**, **5th of 100+** teams at the **Imperial × Anthropic Claude Hackathon**, and **1 of 6** projects from 50+ chosen to present on stage at the **Google Generative UI/A2A Hackathon**.

Education

University College London | *BSc Computer Science* Sept 2025 – June 2028

- Relevant modules: Discrete Mathematics, Theory of Computation, Object-Oriented Programming (Java), Functional Programming (Haskell), Algorithms, Principles of Programming (C).

Southend High School for Boys | *A-Levels* Sept 2023 – June 2025

- **A*AA**: Mathematics (A*), Further Mathematics (A), Computer Science (A).
- Senior Maths Challenge **Gold Award** (best in school).

Technical Skills

Languages: Python, C++, TypeScript, JavaScript, C, Java, Haskell, SQL
Frameworks & Libraries: React, Next.js, FastAPI, Flask, PyTorch, ONNX Runtime, pandas, scikit-learn
Systems & Tools: Git, CMake, GitHub Actions, Docker, Direct3D 11, Vercel, WebAssembly, Claude API, Gemini API

Projects

StudyCanvas | *React, TypeScript, FastAPI, Python, Gemini API* | studycanvas.app | GitHub Jan 2026 – Present

- Built and deployed solo a React/FastAPI study app on Vercel, used weekly by **10 students** including my tutees. Highlighting a PDF passage sends Gemini the exact selection, its page context and the parent answer, and the reply streams into a linked node on a **21-node-type** React Flow canvas; closing a node aborts its request.
- Runs **22** FastAPI route modules as Vercel serverless functions, built around their limits: per-user and project-wide Gemini quotas live in durable KV storage so they hold across cold starts, oversized uploads fall back to browser-side PDF.js extraction, and student Python runs in-browser via Pyodide, never on the server.
- Answers stream with in-band control frames that spawn linked quiz and flashcard nodes mid-answer; workspaces are local-first (File System Access API with IndexedDB fallback).

RayNeo Spatial | *C++20, Direct3D 11, Win32, CMake* | GitHub Sept 2026 – Present

- Built a native **C++20** spatial desktop for RayNeo GT AR glasses: up to **8** virtual Windows monitors are captured through DXGI Desktop Duplication and drawn as world-locked screens in **Direct3D 11**, head-tracked from the glasses' **476 Hz** IMU read over raw HID.
- Wrote the sensor fusion from scratch (Madgwick filter, gyro-bias estimation while the head is at rest, magnetometer heading lock), removing ∼**20**° of yaw drift over a 22-minute worn session and cutting on-screen text jitter **6**×; checked every change against recorded on-head sessions and 19 synthetic scenarios.

UnDiffused | *PyTorch, DINOv2, ONNX Runtime Web, TypeScript, React* | GitHub Dec 2025 – Present

- Built a Chrome extension that estimates whether an image is AI-generated without it leaving the device: fine-tuned a DINOv2-S/14 detector, quantised it to a **24.9 MB** INT8 ONNX model and ran it in WebAssembly at 0.7–0.9 s per image, abstaining when unsure rather than guessing.
- Rebuilt the evaluation around content-matched real/generated pairs after catching an earlier model learning a dataset shortcut; the shipped model scores **0.954 AUROC** on 400 unseen pairs across four diffusion models and stays between 0.948 and 0.958 under JPEG, resizing, WebP and screenshot recapture.

Competitions & Hackathons

Work in Fintech AI Summit – 1st of 20 Teams | *React, TypeScript* | moneywelltown.com Aug 2026

- Selected from **1,300+** applicants (∼120 places); built Moneywell Town with a team of 6 in one week, a browser game teaching UK teenagers how money works, chosen as an ALPHA startup for **Web Summit Lisbon 2026**. The game's five-box Leitner scheduler drops a question one box on a miss and only promotes due questions.
- Owned the rendering pipeline: moving ambient updates on the 792-tile world from React's render cycle into CSS made tile updates **2.5**× faster; rebalancing camera, movement and input scheduling lifted frame rate **53%**.

UCL Data Science Society Hackathon – 1st Place, Finance Track | *Python, scikit-learn* Feb – Mar 2026

- Led a 3-person team to analyse **11,879** congressional stock trades from **172** members over 5 years against the S&P 500 (Quiver Quant, GovTrack, yfinance APIs); found a 46.9% beat rate and significant underperformance ($p < 0.001$), challenging the insider-advantage narrative.
- Trained a Random Forest on party, committee alignment, trade value and disclosure lag; reported the near-random result (5-fold CV, **AUC 0.571**, F1 0.548) as the finding rather than tuning it away, consistent with the Efficient Markets Hypothesis.

Experience

Private Tutor | *GCSE & A-level Maths and Computer Science (OCR), Python* Sept 2024 – Present

- Tutor **7** GCSE and A-level students, raising 3 from **grade 5 to grade 8** in GCSE Mathematics; design lessons on algorithms and the OCR NEA against mark schemes, and teach recursion through live debugging.