Avyakt Pradyun Kotcherelakota

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Education

University of California, San Diego — La Jolla, CA
B.S. Artificial Intelligence — *Aug. 2025 – Jun. 2028*

Experience

Backend Engineer Intern — May 2026 – Present
SkyAccess — *Remote*

- Deployed the company's **first production ML model**, porting ONNX inference into a Node/Bull queue with **zero output mismatches** against the Python reference; now the template for every data-science handoff
- Caught a consent-gate bypass that **had already passed CTO review** — one feature flag from publishing operator data without consent; shipped a NULL-safe fix backed by regression tests
- Ended a **3-hour production deploy freeze** by root-causing Postgres function-overload resolution under json/jsonb schema drift, unblocking two stranded security patches
- Built shadow-scoring and coverage instrumentation for the pricing model, exposing that it **compressed a 73× operator payout range into 3.5×** — a validation failure no existing metric could surface

Undergraduate Research Assistant — Jun 2026 – Present
Computer Vision Lab, UC San Diego — *La Jolla, CA*

- Landed merged fixes to the **InteriorAgent** codebase (LLM program synthesis for 3D layout, **3DV 2026**, UCSD/Qualcomm), including a **silent geometry failure** that placed windows inside solid walls with no error raised

Undergraduate Researcher — Jan 2026 – Present
Rana Lab, UC San Diego — *La Jolla, CA*

- Analyzed differential expression across **8,760 genes** in therapy-resistant **glioblastoma stem cells**, isolating **346 significant DEGs** at $p < 0.05$, $|\log_2 FC| \geq 0.25$
- Ran GO, KEGG, and preranked **GSEA** enrichment (goatools, MSigDB Hallmark), identifying **10 significant gene sets** led by G2M checkpoint (**NES** $= -2.234$**, FDR** $= 0.008$)

Projects

Research Radar | *Python, FastAPI, PostgreSQL, React, Railway/Vercel* | researchradar.xyz — Aug 2026

- Built and deployed a public search index of **2,739 UC San Diego faculty** linking **$1.48B** in NIH/NSF grant funding and **3,000+ arXiv papers** to their source records
- Designed an **identity-resolution pipeline** attributing grants and papers to the correct person across 2,700+ names, with explicit verification tiers and a refuse-rather-than-guess policy for ambiguous matches
- Cut wall time for 30 concurrent API requests **from 29.3s to 2.8s** by caching model-validated response bytes, structured so the cache cannot leak fields the response model excludes
- Ran a five-lens pre-launch audit that reproduced and fixed **26 defects**, backed by **1,600+ automated tests** each verified by mutation

Brain MRI Tumor Classifier | *Python, TensorFlow/Keras, LIME, Gradio, scikit-learn* — Sep 2025

- Trained a CNN to classify brain MRI scans across **4 tumor types at 92% accuracy**, pairing predictions with **LIME superpixel explanations** so each output shows which regions of the scan drove it
- Deployed as an interactive Gradio web app; **won Best Project** out of an audience of 50+ at UC San Diego's Summer Program for Incoming Students

Technical Skills

Languages: Python, TypeScript/JavaScript, SQL (Postgres), Java, C/C++, R, HTML/CSS
Frameworks: Node.js, React, FastAPI, SQLAlchemy, Pydantic, Flask, Next.js, Prisma
ML & Data: PyTorch, TensorFlow/Keras, scikit-learn, ONNX Runtime, pandas, NumPy, Matplotlib
Tools: Git, Docker, Jest, pgvector, Jupyter
Bioinformatics: BWA-MEM, CIRI3, goatools, GSEA, SRA Toolkit