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RICHIK PAL

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EDUCATION

University of California, Berkeley
Aug 2022 - May 2026

B.A. Computer Science | B.A., Molecular and Cellular Biology, Dean's list

- Courses: Systems/Behavioral Neuroscience, Computational Biology Algorithms, Advances Brain Imaging(MRI), Machine Learning, Artificial Intelligence, CyberSecurity, Data Structures, Efficiency in Algorithms, Computer Architecture, Design Information Devices & Systems, Discrete Math, Probability, Linear Algebra, Multivariable Calculus
- The Leadership Award Scholar

RESEARCH/ WORK EXPERIENCE

SDE Intern, Amazon Q, Amazon Web Services (AWS)
May–Aug 2024, May-Aug 2025

- 2025: Develop AI agents using Anthropic's MCP to augment RAG retrieval from LLMs
- 2024: Construct data ingestion pipelines for creating customizations over foundational LLMs
- Skills: AWS Batch, EC2, ECS, Fargate, Lambdas, Amazon Q, DynamoDB

Computational fMRI research, Gallant/CognAc Lab, UC Berkeley
Aug 2023–Present

- Use encoder/decoder models to study decision making and cognitive control using banded ridge regression and voxelwise encoding models on fMRI data
- Led the experiment design and data collection for life-simulation game for fMRI

Tutor for CS170, CS 61A, CS88, UC Berkeley
May 2023–Present

- CS170: Efficient Algorithms & Intractability, CS61A, CS88: Introductory Python programming
- Developed course content and walkthrough videos for assignments and past exams
- Reviewed, developed, and graded exam questions and other course material

Topology and CAD Research, Sequin Lab, Berkeley EECS
Dec 2022–Dec 2023

- Modeled 3D mathematical knots (trefoil etc.) and 2-manifold surfaces
- Enhanced JIPCAD (Joint Interactive Procedural CAD) interface and features
- Independently improved b-spline end closure framework and slider capabilities

VOLUNTEERING

Controls & Vision Lead, Underwater Robotics@Berkeley
Jan 2023–Aug 2024

- Implemented control systems for autonomous underwater robot using ROS2
- Research in leading underwater computer vision techniques and optimal control hardware

Senior Mentor, CS 88, Computer Science Mentors, UC Berkeley
Aug 2022–Dec 2024

- Guided 4 junior mentors in weekly teaching demos to improve instruction and delivery
- Led weekly sections for groups of 5 students, who had little to no experience in CS
- Created worksheets and graded practice questions, co-developed content for review sessions

PROJECTS

Publication: Human Neurodevelopment
Oct 2022–Present

Pal A, Noble MA, Morales M, **Pal R**, Baumgartner M, Yang JW, Yim KM, Uebbing S, Noonan JP. Resolving the three-dimensional interactome of Human Accelerated Regions (HARs) during human and chimpanzee neurodevelopment. Link (Published at Cell)

- Automated RNA-seq analysis and visualization pipelines, analysed human/primate data

ProtoDevAI, an AI biological lab protocol generator
June 2023–Present

- Developed a customizable, scalable tool to create biological protocols for wet-lab experiments
- Currently working on enhancing precision, introducing filters, and fine-tuning parameters

SKILLS

Languages: Python, Java, C, Typescript, React, Risc-V, SQL, HTML, Swift, LaTeX, JavaScript, ROS, Gazebo
Techniques: Website design, 3-D Modeling, CAD
Libraries: Matplotlib, Numpy, Pandas, SciPy, JUnit, RNA sequencing analysis libraries
Tools: AWS Cloud, Kubernetes, JIPCAD, Blender, GitHub, Microsoft Office, Google: Sheets, Slides, Docs