

# Aarav Kumar

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## EDUCATION

**Brown University**, Providence, Rhode Island, USA

2023 - 2027

Sc.B. in Applied Mathematics - Computer Science (**GPA: 4.0**)

**Coursework:** Data Structures and Algorithms, Computer Vision, Software Engineering, Computing Foundations: Data, Surveying VR Data Visualization, Statistical Inference I, Applied PDEs I, Applied ODEs, Multivariable Calculus (with Physics & Engineering), Linear Algebra, Numerical Methods for Differential Eqns, Operations Research: Deterministic Models

## SKILLS

**Languages:** Java | Python | JavaScript | TypeScript | C# | SQL

**Technical Skills:** React | Node | Express | MongoDB | Firebase | HTML/CSS | Postman | Fullstack Development | Git | UX Design | Figma | Blender | Unity | Adobe Suite | Relational Databases | Tableau | AI/ML | Computer Vision

## EXPERIENCE

**Developer and Summer Researcher**, Computer Science Dept., Brown University

2025 - ongoing

- Lead development of Dash, a hypermedia platform (MERN web-app) for maintaining multimodal documents.
- Designed and implemented an agentic writing support system. Co-developed a workspace-aware chatbot, capable of creating, reading, citing, and updating multimedia documents (text, video, diagram, etc.) with spatial understanding.

**Full Stack Developer**, Full Stack @ Brown, Brown University

2024 - ongoing

- Build responsive websites for local NGOs and orgs, integrating React.js frontends with Node.js/Express backends.
- Collaborate directly with stakeholders to produce Figma design mockups and implement custom CMS solutions.

**Design Head**, Hack@Brown, Brown University

2024 - ongoing

- Design interactive websites, animated graphics, and branding for RI's largest annual hackathon with 500+ participants.
- Produce and animate 3D/2D assets in Illustrator, Blender, and After Effects for website and marketing campaigns.

**Data Analyst Intern**, PACT Group Holdings, Sydney, Australia

2024, Jun - Aug

- Analyzed 28 months of machine breakdown data from PACT's liquid manufacturing plant, using Python + Excel.
- Built a predictive maintenance plan (CMMS) to optimize factory productivity - reduced monthly breakdowns by 30%.

**UI/UX Intern**, Kindlife, New Delhi, India

2022, Jun - Aug

- Assisted in redesigning the company's website to support community engagement features.
- Created wireframes in Figma and conducted usability tests with 30+ users to refine navigation flows.

## FEATURED PROJECTS

For more details, visit: <https://skitty1238.github.io/>

**CanGo Events App** | TypeScript, Java, React, Firebase

- Web app for students to discover and organize events, featuring a smart recommendation algorithm based on interests, past RSVPs, and friends. Includes user profiles, networking, and calendar syncing, with 500+ web scraped events.

**Neural Canvas - Image Stylizer** | Python, Jupyter Notebook, Open AI CLIP, Google Colab

- Neural style transfer pipeline that blends up to 10 stylistic influences based on a user's text prompt, and applies them to uploaded images (via comparing text and image embeddings). Optimized image generation and output quality with VGG 19 through weighted style blending, quantization, and pruning, reducing render time by 55% on Colab.

**Haptic AR Earthquake Visualization App** | C#, Unity, Meta Haptics Studio

- Interactive augmented reality application visualizing earthquake data with magnitude scaling, depth overlays, and tectonic plate boundaries. Includes toggleable data layers, terrain elevation mapping, and haptic and audio feedback.

**Agentic Writing Interface** | Typescript, MERN stack, Prosemirror

- AI-driven prompting and suggestion system that provides context-aware feedback to streamline drafting and revision. Integrated into the Dash workspace, supporting real-time writing assistance across interlinked, multimodal documents.

## AWARDS AND CERTIFICATES

**Impact Afghanistan UTRA Fellowship:** Research award to build AI features into web database collecting and disseminating research on women's rights and conditions in post-2021 Afghanistan

2025

**Data Analytics Certificate, Google:** 2-month online course on data-analytics tools (SQL, R, Tableau)

2024

**Valedictorian:** Top performing student high school student

2023

**Top IB Performer:** 45/45 score in IB Diploma (top 0.1%)

2023

**Fundamentals of AR, Stanford:** Online course on augmented reality design

2022