

Pratyay K. Suvarnapathaki

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Human-AI researcher and product-minded engineer combining agentic AI, ethnographic inquiry, and GeoAI to build intelligent systems grounded in human context and real-world data.

Publications and Patents

1. INLAY: Preemptive, In-Context Intelligence for Casual Web Browsing

Pratyay Suvarnapathaki, Adithya SK, Harsh Vijay, Mayukh Das, Ajay Manchepalli, Venkata N Padmanabhan
2026 CHI Conference on Human Factors in Computing Systems (Late-Breaking Work) [link]

2. Artificial Intelligence Integrated Browser Interface

Pratyay Suvarnapathaki, Harsh Vijay, Mayukh Das, Adithya SK, Ajay Manchepalli, Venkata N Padmanabhan
U.S. Patent Application (pending)

3. Interactive and Personalized Content Engagement

Harsh Vijay, Pratyay Suvarnapathaki, Adithya SK, Ajay Manchepalli, Venkata N Padmanabhan
U.S. Patent Application (pending)

4. The Street-Level Algorithmic Theorists in India's Gig Economy

Pratyay Suvarnapathaki, Nimmi Rangaswamy
ACM Interactions, Volume XXXIII.4, Featured Article [link]

5. 'The Boring and the Tedious': Locating Digital Discomfort in Gamified Gig-Work

Pratyay Suvarnapathaki, Viral Shah, Saarthak Negi, Nimmi Rangaswamy
2025 CHI Conference on Human Factors in Computing Systems Workshop - 'HCI Across Borders' [link]

Experience

Research Fellow, Human-AI Interaction

July 2025 – Present

Microsoft Research

Bengaluru, India

- Working on future interfaces for Human-AI collaboration, as part of a lean team led by Dr. Venkata Padmanabhan with technology transfers to M365 Copilot, Microsoft Edge, and MSN; won first and second place at Microsoft's 2025 Global Hackathon (10,000+ participants).
- Contributing to research on a trustable and interaction-aware graph-based AI memory substrate, spanning ambient knowledge ingestion, temporal reasoning and human-centric evals; achieved 92% on a LongMemEval evaluation and cut retrieval latency by 40% compared to the leading internal solution. Ongoing tech transfer to Microsoft WorkIQ.
- Led 'Project Inlay' from research concept to working browser experience, introducing a new paradigm of preemptive, in-context AI for everyday web browsing. Published at CHI; filed a U.S. patent; Tech transfer to Microsoft Edge.
- Driving a research pilot with the Government of India to evaluate our multimodal LLM-powered educational agent 'Lively' across college cohorts; Tech transfer to M365 Copilot's Live Mode; co-invented a patent-pending model for interactive, personalized content engagement for learning.

Geospatial AI Intern

Dec 2024 – June 2025

Nika

Singapore (remote)

- Contributed to core development on NikaPlanet, a no-code, browser-based platform that makes large-scale satellite data exploration and analysis accessible beyond GIS specialists.
- Built high-performance rendering pipelines compliant with the Google Earth Engine specification for 100+ satellite imagery datasets, enabling interactive, browser-native exploration of planetary-scale geospatial data (demo).
- Owned the API architecture and user experience for agentic spatial analysis, turning natural-language questions into executable geospatial workflows and decision-ready visual insights (demo).
- Shipped across the GeoAI stack using *Deck.gl*, *Google Earth Engine*, *OpenAI Agents SDK*, *DuckDB*, *Next.js*, and *Google Cloud Platform*.

Teaching Assistant

Jan-Apr 2024, Jan-Apr 2025

IIT Hyderabad

Hyderabad, India

- Served as TA for the Courses 'Social Science Perspective on Human-Computer Interaction' by Prof. Nimmi Rangaswamy and 'Machine, Data and Learning' by Prof. Vikram Pudi.
- Assisted course instructors by conducting in-person tutorials and lab sessions. Evaluated assignments and exam papers, providing constructive feedback to students.

3D Rendering Research Intern

May 2024 – Aug 2024

École de Technologie Supérieure (via Mitacs Globalink)

Montreal, Canada

- Under the guidance of Dr. Adrien Gruson and Prof. P.J. Narayanan, worked on 3D volumetric rendering.
- Developed a novel methodology to enhance realism in simulations of complex visual effects (VFX) involving heterogeneous participating media like fog and smoke within the open-source rendering engine PBRT-v4.

Product Intern, AI for Creativity

Nov 2023 – Jan 2024

SevnAI [now called PySpur] (Y Combinator W24)

London, England (remote)

- Contributed to developing critical features for SevnAI's web-based vector graphics editor to serve as an intuitive and performant front-end for their 'AI-native design studio' product.
- Designed and implemented a dual-mode chat workflow that let users move fluidly between AI prompting and direct visual editing.

Education

IIIT Hyderabad

August 2020 – July 2026

B. Tech + MS by Research in Computer Science

Hyderabad, Telangana

- **Cumulative GPA: 9.34/10**
- Dean's List awardee for the academic years 2021-22, 2022-23 and 2023-24.
- Relevant Coursework: User Interaction in Digital Products, Human-Computer Interaction, Computer Graphics, Computer Vision, Statistical Methods in AI, Software Engineering, Data Structures and Algorithms.

Leadership and Achievements

Hackathons. First runner-up out at Anthropic's flagship Build India Hackathon 2026. First as well as Second positions at Microsoft's Global Hackathon in 2025, out of 10,000+ participants.

Core team member (former) at the Open Source Developers Group at IIITH. Hosted beginner-friendly workshops, events and hackathons. Head of design for Ping! (the students' media cell) at IIITH.

Personal and Academic Projects

Vibemotion - A video editor built equally for Humans and AI

[Link](#)

- Designed and shipped a web-based video editor with a shared real-time visual UI for humans and MCP interface for AI agents, enabling seamless tag-teaming for video composition, AI generation, transcription, and motion graphics.
- Currently: Private beta with 100+ users; backed by LocalHost; runner-up at Anthropic's 2026 India Hackathon.

Digital Comfort for the Next Billion Internet Users

- Conducted qualitative field research with food-delivery workers and farmers in India to uncover interface barriers, workarounds, and trust dynamics among emerging technology users.
- Synthesized findings into design principles connecting 'digital comfort' with systemic trust, published as an open Figma community resource.

A comprehensive UX Audit and Redesign of IIIT-H's Institute Management System

[Link](#)

- Conducted interviews and usability research with stakeholders including students, faculty and administrators to identify structural pain points in IIIT-H's Institute Management System.
- Translated findings into a redesigned information architecture, wireframes, and storyboards that reduced navigation depth and clarified access to critical tasks.

Gaia - An Interactive 3D Earth

[Link](#)

- Built an extensible SDK featuring an interactive 3D globe component for customizable geospatial visualization, demonstrated through temporal forest-cover data and global earthquake patterns.

Technical Skills

Research: Human-AI Interaction, Future of Work, Ethnographic Fieldwork, User Interviews, Mixed-methods Study Design, Interaction Design, Product Strategy

AI Systems: Agentic AI, RAG and evaluation, Knowledge Graphs (GraphRAG, Neo4j), Multimodal AI, Memory and Personalization, PyTorch, OpenAI API, Claude Agents SDK

Geospatial and Visual Computing: Google Earth Engine, DuckDB, Deck.gl, Physically-based Rendering, WebGL/Three.js, D3.js, OpenGL, CUDA, OpenCV

Tech: Python, TypeScript/JavaScript, C/C++, Java, SQL, React/Next.js, FastAPI, PostgreSQL, Figma