

Partha Pratim Ray

Assistant Professor • Senior Researcher • IoT, Edge AI & LLMs

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Professional Summary

Seasoned academic and researcher with 12+ years of experience in IoT, Edge Computing, and AI, consistently recognized among the top 2% scientists worldwide by Stanford University. Specialized in enabling quantized LLMs on resource-constrained edge devices, semantic routing, and IoT integration with LLMs. Published 120+ SCI/Scopus papers, led multidisciplinary projects, and supervised postgraduate research. Seeking roles bridging cutting-edge LLM research and industry innovation.

Education

- **Ph.D. in Computer Applications**, Sikkim University Expected 2026
Thesis: "Enabling Large Language Models on Resource-Constrained Edge: A Multi-Faceted Approach"
- **M.Tech (Embedded Systems)**, Haldia Institute of Technology, MAKAUT 2011
DGPA: 9.60/10
- **B.Tech (Computer Science & Engineering)**, B.P. Poddar Institute, MAKAUT 2008
DGPA: 8.15/10
- **GATE (CS) Qualified**, 91.62%ile 2009

Key Skills

- **Languages:** C, Python, C++, LaTeX
- **AI/ML:** Ollama, HuggingFace, scikit-learn, SentenceTransformers
- **Localized LLM:** Qwen3, DeepSeek-R1, Llama3.2, Granite3.1-MOE, Gemma3, SmolLM2
- **Frameworks/Tools:** FastAPI, Flask, Gradio,
- **IoT/Edge:** Raspberry Pi, Arduino, ESP32, Wi-Fi, RESTful APIs
- **Research:** Research Article Writing, Research Systematic Review Analysis
- **Certifications:** Certified Blockchain Expert-V2; Mastering Digital Twins

Professional Experience

- Assistant Professor (Senior Scale)**, Sikkim University, India Dec 2020–Present
 - Organized FDPs/workshops on LaTeX, Raspberry Pi, Blockchain, Green Computing, LLM applications.
 - Drafted curriculum for MCA, B.Sc. CS, and vocational programs under NEP 2020.
- Assistant Professor**, Sikkim University, India Jul 2012–Dec 2020
 - Led research in IoT and edge computing, filed 7 patents, won best-paper awards.
 - Mentored student clubs and facilitated placements via the Training & Placement Committee.
- Assistant Professor**, Surendra Institute of Engg. & Mgmt., Siliguri, India Jan 2012–Jun 2012
 - Taught C Programming & Embedded Systems; developed lab curriculum and assessments.

Selected Projects

- **Semantic Dynamic Routing with LLMs:** Zero-shot/few-shot dynamic function schema design for optimal LLM invocation on Cortex-A72 edge devices.
- **Sequential Agent Framework:** Multi-agent pipeline orchestrating tasks via local LLMs (all-minilm, qwen2.5:0.5b) on RPi.
- **LLM-IoT Integration:** LLMIoT framework enabling RESTful IoT clients (ESP32, Arduino MKR1000) to query local LLMs on constrained edge.
- **Vision-Language Mapping:** Book recommendation system linking images to metadata via OpenAI Vision API and Open Library API.

Metrics & Select Publications

- H-index: 40 i10-index: 71 Citations: 11588
- SCI Journals: 122 Scopus Journals: 24 Patents Filed: 7

Patents & Awards

- 7 national patents filed on IoT/Blockchain-enabled e-Healthcare.
- Best Paper, AICTA 2024 (NIT Raipur); World's Top 2% Scientist, 2020–2024.

Professional Memberships

Fellow, IETE Senior Member, IEEE Member, ACM, CSI, IET, ISCA, IACSIT