

Sathvik Joel

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EDUCATION

Indian Institute of Technology Madras	Chennai, India
B.Tech & M.Tech in Computer Science and Engineering; GPA: 8.73/10.00	Aug 2019 - Jun 2024
Pohang University of Science and Technology (POSTECH)	Pohang, South Korea
Year Exchange, Computer Science (POSCO GYP Scholarship); GPA: 3.20/4.30	Aug 2023 - Jul 2024
KTH Royal Institute of Technology	Stockholm, Sweden
Semester Exchange, Computer Science; GPA: 4.40/5.00	Aug 2022 - Jan 2023

PROFESSIONAL EXPERIENCE

Microsoft Research India	Bangalore, India
Research Fellow – AI4Code & SCAI Teams	Jun 2024 - Present
<ul style="list-style-type: none">◦ Built Code Researcher, an autonomous deep research agent for multi-million line codebases; achieved 58% crash-resolution rate on Linux kernel benchmark vs. 37.5% by SWE-agent (+55% relative improvement).◦ Developed SafeAgents, a security framework exposing vulnerabilities in multi-agent LLM systems; introduced novel adversarial prompting techniques and Dharma metric for quantifying systemic risks across 5 MAS architectures.◦ Scaled a medical Vision-Language Model (VLM) via GRPO post-training; reduced hallucinations in radiology report generation while optimizing for low-latency clinical inference.	
University of British Columbia	Kelowna, Canada
Visiting Research Student (MITACS Globalink Fellowship)	Summer 2023
<ul style="list-style-type: none">◦ Led instruction fine-tuning research for code generation LLMs under Prof. Fatemeh Hendijani Fard; improved model performance on low-resource programming languages.◦ Benchmarked OpenAI GPT embeddings against 6 code-specific models for semantic code search; published comparative analysis informing embedding selection for retrieval systems.	

PUBLICATIONS

A Survey on LLM-based Code Generation for Low-Resource and Domain-Specific PLs	PDF
First Author – ACM TOSEM (Oct 2024). Systematic review of 111 papers on LLM code generation for LRPLs/DSLs.	
Code Researcher: Deep Research Agent for Large Systems Code	PDF
First Author – Under Review at ICLR 2026. Deep research agent achieving 58% crash-resolution on Linux kernel.	
Exposing Weak Links in Multi-Agent Systems under Adversarial Prompting	PDF
First Author – Under Review at ICLR 2026. SafeAgents framework for MAS security assessment.	

AWARDS & ACHIEVEMENTS

JEE Advanced – Rank 38 / 1.2M candidates	2019
India's premier engineering entrance examination	
POSCO Global Young Leaders Scholarship	2024
Sole Indian representative; fully funded year at POSTECH, South Korea	
MITACS Globalink Graduate Fellowship	2023
Awarded for exceptional research during international internship	
CODS-COMAD 2023 Data Challenge – 2nd Place	2023
Deep learning solution for educational video prerequisite identification; presented at main conference	

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, C++, SQL

ML/AI: PyTorch, Transformers, LangChain, RAG, RLHF/GRPO, Fine-tuning, Multi-Agent Systems

Tools & Frameworks: React Native, Plotly Dash, Git, Linux, CUDA, Docker

Research Areas: LLM Agents, Code Generation, Adversarial ML, Medical AI, NLP