Rajarshi Karmakar

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Dublin, Ireland [Stamp-1G]

Summary

AI & Software Engineer with 4+ years' experience delivering **AI/ML solutions** across computer vision, NLP, and cloud systems. Skilled in building **end-to-end pipelines, automation, and scalable applications** that improve decision-making and performance. Strong foundation in **electronics and microprocessor programming**, bridging hardware and AI for practical, business-focused solutions.

Technical Skills

- **AI/ML & Frameworks:** Generative AI, Retrieval-Augmented Generation (RAG), Multi-Agent Systems, Transformers, CNNs, LLM fine-tuning, PyTorch, TensorFlow, Scikit-learn, HuggingFace, OpenAI API [1]

- **Programming:** Python(proficient), SQL, C, Bash, Go

- **Cloud and Infrastructure:** AWS, Azure, Docker, Kubernetes, Terraform, Ansible

- **Data and Analytics**: Apache Kafka, Vector Databases, Data Visualization, Jupyter Notebook

- **DevOps and CI/CD:** Git, Jenkins, GitHub Actions, TeamCity

- **Professional Skills:** Client Engagement, Mentoring, Cross-functional Collaboration, Presentations

Experience

Valeo Vision Systems   **February 2025 – August 2025**
AI Researcher (Internship)   *Ireland*

- Designed and implemented advanced AI models for **computer vision and self-driving systems**, improving road feature detection accuracy and supporting safer navigation.
- Analyzed 50+ research studies and identified gaps, leading to a **new approach that boosted consistency and precision of visual mapping.**
- Streamlined model experimentation workflows, cutting turnaround time by **50%** through optimized GPU utilization and automation.
- Delivered semantic-aware perception methods that made AI **more robust in dynamic urban environments.**

University of Limerick   **September 2024 – November 2024**
Laboratory Instructor (Contract)   *Ireland*

- Taught and supervised Operating Systems labs, connecting theory to real-world practice with Linux.
- Mentored students in troubleshooting, scripting, and system management, improving applied computing skills.

CIENA   **Apr 2022 – Aug 2024**
Software Engineer 1A   *India*

- Contributed to network software powering **global optical platforms**, ensuring reliable connectivity for high-volume internet traffic.
- Developed and enhanced **cloud-ready microservices** to improve resilience and scalability across **AWS, Azure, and IBM Cloud**.
- Introduced an **AI-powered knowledge assistant** that reduced engineer lookup times by **30%**, increasing team productivity.
- Automated routine testing and troubleshooting with Python, reducing manual workload and accelerating feature delivery.
- Partnered with **cross-functional teams** (UI, hardware, and design) to deliver new features faster and with higher quality.

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[1] Core Technologies: Python, Pytorch, AI systems

HCL Technologies   **Feb 2021 − Apr 2022**
Software Engineer   *Remote, India*

– Supported **large-scale system deployments** by reviewing code changes, applying secure patch releases, and ensuring system reliability.
– Built **real-time monitoring dashboards** (Grafana, Prometheus) and automated infrastructure tasks with Python/Bash, reducing downtime and manual effort.
– Managed **AWS cloud resources** and produced documentation for OS upgrades, improving efficiency and long-term compatibility.

Education

University of Limerick (Ireland)   **2024 − 2025**
MEng in Computer Vision and Artificial Intelligence   *First Class (3.7)*

– Specialized in **AI model development, computer vision, and scalable AI infrastructure**.
– Focus on **model fine-tuning, quantization, ethical AI design, and applied machine learning.**
– **Thesis:** Developed a **CNN-based architecture to improve self-driving perception in adverse weather**, enhancing safety and stability.

SRMIST (India)   **2016 − 2020**
Bachelors in Electronics and Communication   *First Class*

– Gained hands-on experience with **hardware and chip design, digital/analog electronics, and microprocessor programming**.
– **Thesis:** Built a system for **brain wave synthesis and visualization using EEG and Python**.

Side Project

SafeSpaceAI
(Demo Link)

– Developed a mental wellbeing app combining an AI chat assistant with mood tracking and analytics.
– Built with Supabase (auth & data storage) and integrated Gemini GenAI API for personalized, context-aware chat responses.
– Implemented an alert system for sudden mood changes, supporting proactive mental health intervention.

Awards & Hackathons

Stellar Ireland Hackathon - Winner: Built a **multi-agent parametric insurance platform** using blockchain + weather/port APIs; recognized for innovation and real-world application for predicting insurance damage with realtime weather data.

ACI Worldwide Hackathon − Winner: Created a **secure payment system with fraud detection**, showcasing ability to design end-to-end fintech solutions under tight deadlines.

NetApp GenAI Workshop (Cork): Developed an **AI-powered sustainability tracker** using generative AI + geolocation data, demonstrating ability to apply AI beyond core engineering.

Volunteering

Serve the City(Ireland): Community outreach and environmental clean-ups; contributed to **local engagement and team-based initiatives**.