ROHITKUMAR DATCHANAMOURTY

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LinkedIn
GitHub

SUMMARY

Dual-degree graduate student specializing in applied mathematics and deep learning. Concurrently serving as a research student at Laboratory for Imaging Science and Technology and as a Research Scientist Intern at AIRS Medical.

SKILLS

Technical Java, Python, C, Pytorch, Tensorflow, Gym, Shell, CUDA, JAX, Matlab, FreeSurfer

Soft Autonomy, Communication, Curiosity, Perseverance, Leadership

EDUCATION

2023 - 2025 **M.Sc. in Electrical and Computer Engineering** — **Seoul National University, South Korea**

- Conducting research at Laboratory of Imaging Science and Technology, focusing on Magnetic Resonance Imaging and Reinforcement Learning. Supervised by Jongho Lee, Ph.D.
- Thesis: *"Design of Radiofrequency Pulses Using Reinforcement Learning: Acceleration via Enhanced Deep RL and Scalable Computation"*
- Advanced training in Reinforcement Learning, Distributed Computing, Generative Models – GPA 3.9/4.0, *summa cum laude*

2021 - 2025 **Master in Engineering ('Grande École')** — **Institut Polytechnique de Paris - Télécom SudParis, France**

- Specializations : Probability, Statistics, Signal Processing, Information Theory, Computer Vision
- Results : Ranked in the top 10% of students in my academic cohort

2019 - 2021 **Preparatory Class** — **Lycée Janson de Sailly, France**

- Intensive training in science to prepare for the national competitive entrance exams to the 'Grandes Écoles'

EXPERIENCE

2025 - Current **Machine Learning Engineer** — **Raidium, France**

- Recently joined, details to follow as projects progress.

2024 - 2025 **Research Scientist Intern in Computer Vision** — **AIRS Medical, South Korea**

- Developed solution for monitoring amyloid-related imaging abnormalities (ARIA) in Alzheimer's patients:
  - Established and managed labeling pipeline for 2000+ patient MRI scans, supervising 4 doctors
  - Implemented U-Net models for ARIA detection in single-time point and longitudinal MRI scans
  - Developed MVP with user features, frontend, and backend for pilot launch
- Developed deep learning model for detecting and quantifying white matter hyperintensities (WMHs) in brain FLAIR MRIs:
  - Localize WMHs and map them to corresponding brain lobes to identify lesion dissemination
  - Generate region-wise lesion burden metrics for clinical interpretability
- Developed a novel method for measuring cortical thickness in specific brain regions using advanced neuroimaging techniques and FreeSurfer.
- Conducted market research to launch a brain volumetric analysis product in the US market:
  - Analyzed competitors, US regulatory landscape, domain experts feedback
  - Formulated value proposition, market entry strategy and pricing model

2021 - 2023 **Head of AI** — **Kryptosphere, France**

- Led AI french division in Europe's pioneering student project democratizing AI and blockchain
- Designed and delivered weekly AI workshops to 30+ students, covering advanced topics in AI
- Contributed to the organization of seminars such as Pragma 2023, fostering a collaborative environment

2022 - 2023 **Freelance AI Consultant** — **Various Startups, France**

- Nijta (Speech AI startup):
  - Analyzed regulatory environment and industrial applications of voice data technology
  - Identified market opportunities and developed customer profiles for go-to-market strategy
- JurIA (AI-powered legal assistant startup):
  - Proposed tech stack and roadmap for ChatGPT-like legal assistant, including benchmarking
  - Provided guidance on integrating state-of-the-art large language models and retrieval techniques

Summer 2022 **Entrepreneurial Project** **IMT Starter, France**

- Developed a real-time movement detection solution to assist patients in physiotherapy rehabilitation
- Collaborated in a three-person team to drive project development and innovation
- Concluded project after thorough market analysis revealed limited user demand and product-market fit

PROJECTS

Spring 2025 **Google DeepMind Hackathon** **GitHub**

- Built agentic AI for monitoring Alzheimer's treatment: tracked edema progression with nnU-Net
- Fine-tuned MedGemma-4B on MRI using LoRA and quantization (+0.5 acc) to identify affected brain regions, advancing foundation models for MRI
- Integrated Gemini with Vertex AI RAG Engine for live scientific literature access and report generation
- Deployed models on Google Cloud Platform and built MVP frontend. Awarded Jury's Honorable Mention.

2023 - 2025 **Accelerated DeepRF: reinforcement learning-designed radiofrequency waveform in MRI** **GitHub**

- Enhanced existing RL framework for designing optimal radiofrequency pulses in MRI scanners
- Implemented genetic algorithms and leveraged distributed learning across multiple GPUs
- Achieved 93.8% reduction in computation time (from 40 to 2.5 hours) while improving performance by 6%
- Journal paper submitted to Magnetic Resonance in Medicine; awaiting decision

Fall 2024 **Normalizer-free Vision Transformers** **GitHub**

- Developed normalizer-free Vision Transformers by implementing T-Fixup initialization, eliminating layer normalization while maintaining training stability
- Achieved stable training at higher learning rates through careful weight initialization, proving initialization outperforms gradient clipping techniques

Spring 2023 **Lung segmentation using Deep Learning**

- Preprocessed a dataset of 200+ patient MRI scans, ensuring high-quality input for training
- Conducted extensive experiments with various U-Net architectures to optimize model performance

Spring 2022 **Paris Hi!ckathon 2022** **GitHub**

- Conceived a good performing and frugal computer vision model in view of solving an issue around sizing the carbon footprint of a company's employees' car fleet
- Submitted a viable MVP, a scientific procedure document as well as a business video pitch

PUBLICATIONS & PRESENTATIONS

- **Datchanamourty, R.***, Min, K.*, Oh, M., Lee, J. (2025). FastDeepRF: Accelerated AI-Driven Radiofrequency Pulse Design through Enhanced Reinforcement Learning and Distributed Computing. Published in the *Proceedings of the International Society for Magnetic Resonance in Medicine (ISMRM), 2025*. Poster presentation, Hawai'i, USA.
- **Datchanamourty, R.***, Lee, J. (2024). Accelerated DeepRF: Leveraging Distributed and Genetic Algorithms for Faster Radiofrequency Waveform Design. Published in the *Proceedings of the International Conference on Magnetic Resonance Imaging (ICMRI), 2024*. Oral presentation, Seoul, South Korea.

ABOUT ME

Languages : English (Bilingual), French (Native), Tamil (Native), Spanish (Intermediate), Korean (Beginner)

Interests : Music Production (6 years, freelance projects for 2 years), Gym, Reading