

# ARJUN AGARWAL

ML Researcher Building Practical Intelligence

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Hi there! This is a generic overview that I can modify. I am writing this here as a placeholder to demonstrate the inclusion of an overview section in my resume/CV.

## WORK EXPERIENCE

### Senior AI Scientist

Jul 2021 - Present 4 years 6 months

#### Qure.AI Technologies Pvt. Ltd.

- Scaled stroke-triage and lung-cancer products from R&D to FDA-cleared deployments in 10+ countries
  - Led the **Stroke & Trauma Intelligence (qER)** program from **novice hire to R&D lead**, spanning triage models (**AUC 0.85–0.98, DSC 0.30–0.95, ↓ 36% MAE**) to published treatment recommendation systems, built on **140k** weakly annotated datapoints and **10k** radiologist-labeled scans, increasing patient referrals to specialized treatment centers by **~30%** (estimated).
  - Transplanted the toolkit to the **Lung Cancer AI platform (qCT)**: raised AUCs (**specificity ↑ 0.1–0.2 @ same sensitivity**) on **22k** pulmonary nodules, built a ranking engine (**NDCG@5 0.92**), prototyped DETR with custom 3D mAP/mAR metrics. Currently supervising three scientists and three data engineers while leading research into multimodal malignancy scoring (CT, PET, biopsy, reports, EHR).
- Built future-facing research assets: a **CT-native foundation encoder** (SwinV2-3D/MaxViT + SimMIM + MedCLIP) with memory-aware training that boosts downstream qER models (**AUC +0.02, DSC +0.07**); physics-grounded synthesis that expanded scarce cohorts by **80%**; a hierarchical NVAE (**SSIM 0.96/PSNR 36**) feeding latent diffusion studies; and the '**vision\_architectures**' library that standardizes 3D backbones with activation-checkpointing toggles, tensor-splitting parallelism, EMA students, diffusion schedulers, etc., adopted by CT R&D.
- Collaborated with the regulatory, product, and clinical research teams: led the fastest **FDA 510(k) (3.5 months)**, fronted CE/MDR/MDSAP filings, co-authored papers/conference proceedings across qER and qCT pathways, hold U.S./India patents, and won the **\$100K JnJ Japan QuickFire grant**.
- Ran **data, tooling, and production** infrastructure: governed 30+ TB multimodal datasets with Postgres/Mongo lineage, safetensor caching (**↓ 80% access latency**), NLP/LLM report parsing and annotation automation, that drove a **3x** normalized annotation-throughput gain; architected a custom process-graph pipeline with TorchScript and nested Pydantic configs, **>2k** pytest cases (coverage **22%→91%**), cut turnaround **57%**, slashed integration from **8** to **1** day, and eliminated config-driven incidents across on-prem/cloud/hybrid deployments.

## EDUCATION

### Stanford Center for Professional Development, Stanford University

#### Reinforcement Learning

Jan 2023 - Apr 2023

- Grade : A

### Birla Institute of Technology & Science, Pilani (BITS Pilani) - Goa Campus

#### Master of Science, Economics

2017 - 2022

#### Bachelor of Engineering, Computer Science

2017 - 2022

- Computer Science Major GPA : 9.31 / 10
- Overall GPA : 8.67 / 10

## PATENTS & PUBLICATIONS

### Patents

- **Agarwal, A.**, Kumar, S., Golla, S., Tanamala, S., Putha, P., Chilamkurthy, S., Warier, P. (2024). A System and Method for detecting large vessel occlusion (LVO) on a computational Tomography angiogram (CTA) automatically. *U.S. Patent 11967079*. Granted on 23rd Apr 2024. *India Patent 563364*. Granted on 25th Mar 2025

### Publications

- **Agarwal, A.**, Bharti, N., Ghosh, T., Golla, S., Bains, N.K., Chamadia, R., Robert, D., Putha, P., Qureshi, A.I. (2025). Development and internal validation of multimodal machine learning models for predicting eligibility for mechanical thrombectomy in suspected stroke patients using routinely collected clinical and imaging data. *PLOS One*, 20(10): e0334242. doi: 10.1371/journal.pone.0334242
- Kumar, S., **Agarwal, A.**, Golla, S., Tanamala, S., Upadhyay, U., Chattoraj, S., Putha, P., Chilamkurthy, S. (2023). Mind the Clot: Automated LVO Detection on CTA using Deep Learning. *IEEE/CVF International Conference on Computer Vision Workshops (ICCVW), Paris, France*, 2023, pp. 2495–2504. doi: 10.1109/ICCVW60793.2023.00264
- Govindrajan, A., **Agarwal, A.**, Chattoraj, S., Robert, D., Golla, S., Upadhyay, U., Tanamala, S., Govindrajan, A. (2023). Identification of Hemorrhage and Infarct Lesions on Brain CT Images using Deep Learning. *arXiv* 2307.04425. doi: arXiv.2307.04425
- Louis, J., **Agarwal, A.**, Mondal, S., and Talukdar, I. (2021). A global analysis on the differential regulation of RNA binding proteins (RBPs) by TNF- $\alpha$  as potential modulators of metabolic syndromes. *BBA Advances*, 100037. doi: 10.1016/j.bbadv.2021.100037
- Louis, J., **Agarwal, A.**, Aduri, R., and Talukdar, I. (2021). Global analysis of RNA–protein interactions in TNF- $\alpha$  induced alternative splicing in metabolic disorders. *FEBS Letters* 595(4), pp.476–490. doi: 10.1002/1873-3468.14029
- Mishra, B., Raghuraman, R., **Agarwal, A.**, and Aduri, R. (2019). Finding small molecules with pan-serotype activity to target Dengue non-structural protein 1. *VirusDisease* 30, pp.477–489. doi: 10.1007/s13337-019-00561-2

### Conferences

- **Agarwal, A.**, Bharti, N., Ghosh, T., Golla, S., Bains, N., Chamadia, R., Putha, P., Qureshi, A. (2024). Streamlining assessment of Mechanical Thrombectomy eligibility in Acute Stroke: An AI Approach using NCCT and CTA. *International Journal of Stroke, World Stroke Congress*. doi: Accepted. Publication in Oct 2024
- **Agarwal, A.**, Upadhyay, U., Golla, S., Putha, P., Tarpley, J. (2023). Using AI to quantify Gaze Deviation on NCCT scans to predict Large Vessel Occlusion in stroke patients. *International Journal of Stroke, World Stroke Congress*, EP717 / #2597. doi: 10.1177/17474930231192010

- Agarwal, A., Upadhyay, U., Golla, S., Kumar, S. (2023). Application of AI for Infarct Detection on non-contrast CT scans and its efficacy in predicting Large Vessel Occlusions in Stroke cases. *International Journal of Stroke, World Stroke Congress*, O090 / #2079. doi: 10.1177/17474930231192010
- Upadhyay, U., Agarwal, A., Golla, S., Tanamala, S., Putha, P., Chilamkurthy, S. (2023). Volumetric Estimation of Infarct on NCCT - An AI Based Technique. *British Institute of Radiology AI Annual Conference*
- Kumar, S., Agarwal, A., Tanamala, S., Golla, S., Putha, P., Upadhyay, U., Chilamkurthy, S., Pandian, J. (2022). Deep Learning based LVO detection on CT Angiography of Brain. *International Journal of Stroke, World Stroke Congress*. doi: 10.1177/17474930221125973
- Kumar, S., Agarwal, A., Tanamala, S., Golla, S., Putha, P., Upadhyay, U., Chilamkurthy, S., Pandian, J. (2022). Deep Learning Guided Extraction of the Brain's Vascular Territories on CT Angiography. *American Society of Functional Neuroradiology*
- Agarwal, A., Singhal, S., Golla, S., Tanamala, S., Chilamkurthy, S., Pandian, J. (2022). AI-guided Infarct Detection on MRI DWI. *Indian National Stroke Conference*