

# ANSHAY AGARWAL

Principal R&D Engineer | Computer Vision & Signal Processing | [LinkedIn](#) | [GitHub](#)  
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## SUMMARY

**R&D Scientist and Architect** with 10+ years of experience (Ex-Qualcomm, Nvidia, DRDO) in **Computer Vision, Signal Processing, and Real-Time Systems**. Deep expertise in **Multi-Modal Sensor Fusion** (X-Ray/RGB/Thermal) and **Deep Learning** for detection. Passionate researcher in **Medical Imaging (CT/MRI)** and **Neurotechnology (BCI)** with proven success in deploying high-performance algorithms on edge hardware.

## MEDICAL AI & BCI RESEARCH

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### Automated Arterial Segmentation (CT Scans) | Deep Learning Researcher

- Developed a **3D Semantic Segmentation pipeline** using **PyTorch** to isolate Carotid and Vertebral arteries from volumetric CT Angiography data.
- Implemented **Calcification Classification algorithms**, utilizing deep neural networks to quantify arterial plaque burden, aiding in automated stroke risk assessment.

### Brain-Computer Interface (BCI) for Motor Control | Researcher

- Designed a real-time **Motor Imagery BCI system** acquiring non-invasive EEG signals to decode user intent.
- Implemented Signal Processing pipelines to extract features from raw EEG data, enabling direct thought-controlled cursor manipulation in a virtual environment.

## EXPERIENCE

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### Greyscale AI | Senior Computer Vision Engineer | Feb 2021 - Oct 2022

- **Multi-Modal Sensor Fusion:** Architected the software stack to synchronize and merge data from **X-Ray and RGB sensors**, enabling automated foreign object detection in real-time streams.
- **Edge AI Deployment:** Developed the complete embedded software pipeline handling real-time communication between hardware sensors and the inference engine.

### Qualcomm | Senior Lead Software Engineer | Apr 2023 - Jan 2025

- **Optimized Real-Time Rendering:** Achieved a **96% reduction in latency** ( $35\text{ms} \rightarrow 1.3\text{ms}$ ) for XR Flicker correction on GPU, critical for high-fidelity visual systems.
- **Advanced Imaging Algorithms:** Led the design of novel HDR flows for Premium Tier chips, optimizing signal processing chains for next-gen hardware.

### Schoolbook.ai | Co-Founder, Head of AI and Engineering | AI, Python | Jun 2025 - Sep 2025

- **RAG & GenAI Architecture:** Built a multimodal RAG pipeline integrating Vector Databases and Gemini Pro to synthesize technical content from unstructured datasets.
- **Agentic Workflows:** Engineered autonomous AI agents using **LangGraph** capable of multi-step reasoning and tool use

### NVIDIA | System Software Engineer | Jul 2017 - Jun 2018

- **Imaging Stack Optimization:** Enhanced the Tegra Camera imaging stack, resolving critical **Lens Shading** and **Bayer Demosaicing** artifacts for high-precision computer vision applications

**DRDO (Ministry of Defence) | Scientist | Aug 2013 - Jul 2015**

- **Thermal Imaging R&D:** Engineered image enhancement algorithms for **Night Vision Thermal Cameras**, improving visibility range up to 40km.
- **Signal Restoration:** Developed algorithms to correct Vignette artifacts and improve Signal-to-Noise Ratio (SNR) in low-contrast thermal data.

## SKILLS

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**Core:** Computer Vision, Signal Processing, Deep Learning, Real-Time Systems.

**AI/ML:** PyTorch, TensorFlow, OpenCV, LangChain, RAG, Transformers.

**Medical/Bio:** DICOM Processing, Volumetric Segmentation (3D U-Net), EEG Signal Processing.

**Languages:** Python, C++, MATLAB.

## EDUCATION

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- **IIT Delhi: M.Tech, Computer Technology (2015 - 2017)**
- **IIT Mandi: B.Tech, Electrical Engineering (2009 - 2013)**

## SPECIALIZATIONS

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- **Wharton School:** Entrepreneurship Specialization (2021-2022)
- **DeepLearning.AI:** TensorFlow Professional Cert (2020), Deep Learning Specialization (2019)
- **Johns Hopkins University:** Fundamental Neuroscience for Neuroimaging.
- **Hebrew University of Jerusalem:** Synapses, Neurons and Brains.
- **Northwestern University:** Modern Robotics (Motion Planning & Control).

## ACHIEVEMENTS

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- **Top Ranks:** GATE (AIR 423), IIT-JEE (Top 1%), GRE (321/340), XII Board (Top 0.1% Math).