# Anshay Agarwal

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## EXPERIENCE

### Calpion
Lead Software Engineer | Bangalore | Sep 2022 – April 2022

- Image segmentation of carotid and vertebral arteries in 3D volume of CT scan images
- Designed Deep learning CNN models to predict mutations of amino acids in a protein chain
- Refactored existing code and achieved 30-50% speedup on complete pipeline on AWS

### GreyScaleAI
Software Engineer | Bangalore | Feb 2021 – Sep 2022

- Design and architect the software for handling and merging results from multiple cameras (xray, RGB)
- Building complete food inspection solution using X-Ray camera, Computer Vision, Deep Learning and OpenCV
- Developed complete embedded UI – which is at the heart of all software running on the edge machine handling real time communication with hardware and software as well as user inputs
- Fixed more than 35 bugs within just 4 days with implementing new features and testing
- Implemented client for communication over MQTT
- Refactored complete code and improved build process using CMake
- Added googletest Testing and glog logging framework

### XernAI
Founder | July 2017 – present

- Brain Computer Interfacing and Deep Learning stealth projects

### Nvidia Graphics
System Software Engineer | Pune | July 2017 – July 2018

- Developed features on Tegra platform; debugging and fixing issues in the Camera Imaging pipeline and overall improvement of Imaging software stack
- Delivered more than 10 critical bug fixes on camera stack including lens shading, Cuda Histogram, etc. which helped in timely delivery of the products

### Defense Research and Development Organization (DRDO)
Scientist | Dehradun | August 2013 – June 2015

- Worked on reducing the vignette due to lens shading in Thermal Imagers (LREO and MREO) for night vision cameras used in military
- Delivered fixes for bore-sighting, noise and poor focus for Thermal Image enhancement of the images captured with LREO and MREO resulting in significant improvement in image quality
- Designed and constructed a Raspberry Pi based Thermal Imager controller for operating the Thermal Imager from a distance. This in-house development eliminated the need for procuring the controller from an external agency and reduced cost and development time

### North Delhi Power Limited (NDPL)
Intern | Delhi | May 2011 – July 2011

- Worked on Operation and Maintenance of Grids and learned about towers, cables, SCADA panels, Smart grids and components of a grid

## SKILLS

C++, Python, DeepLearning, CT, MRI, DICOM, ROS, MATLAB, 3D Modeling (Blender), CMake, OpenCV, PostgreSQL, Qt, Arduino, Coppeliasim(V-rep), Git, OpenVibe, KiCAD, Kotlin (Android Studio), CVAT, Unity

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## EDUCATION

### MASTER OF TECHNOLOGY (M.TECH.)
Computer Technology
Indian Institute of Technology Delhi (IIT Delhi)
New Delhi | 2017
- Dissertation: Thermal Video Stabilization, which stabilizes a video captured through night vision camera
- Project on Brain Computer Interfacing which involved moving a cursor on the screen using Motor Imagery signals captured via EEG

### BACHELOR OF TECHNOLOGY (B.TECH.)
Electrical Engineering
Indian Institute of Technology Mandi (IIT Mandi)
Mandi, HP | 2013
- Thesis: Automobile Collision Prevention System
- Founded Robotics Section of IIT and built 1st robot of IIT Mandi from scratch
- Member of Electronics Section
- Recipient of Merit Cum Means Scholarship

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## CERTIFICATES / SPECIALIZATIONS

### Entrepreneurship
The Wharton School (2021-2022)
Wharton's Entrepreneurship Specialization covers the conception, design, organization, and management of new enterprises. This five-course series is designed to take one from opportunity identification through launch, growth, financing and profitability

### Deep Learning Specialization
Deeplearning.ai (2018-2019)
Foundations of Deep Learning and understanding of Convolutional networks, RNNs, LSTM, etc

### Modern Robotics
Northwestern University (2020-2023)
This Specialization provides a rigorous treatment of spatial motion and the dynamics of rigid bodies, employing representations from modern screw theory and the product of exponential formula and to apply these tools to analysis, planning, and control of robot motion.

### TensorFlow Developer Professional Certificate
Deeplearning.ai (2019-2020)
A grounding to start with TensorFlow, detailing on understanding of loss functions, optimizers, convolutions, LSTM, etc.

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## ACTIVITIES
- Organized and managed workshop on Mobile Autonomous Robotics at IIT Mandi
- Workshop on Swarm Robotics at Thapar University
- Organized multiple events at Cognizance 2009 at IIT Roorkee

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## ACCOMPLISHMENTS
- GRE Score- 321/340 (170/170 in Quantitative)
- IIT JEE Rank - 3547 (~0.4 million students)
- GATE Rank - 423 (99.998 percentile) in Electronics and Communication
- Among top 0.1% students of India in XII board exams (AISSCE) in Mathematics (100%) and Computer (99%)

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## PSYCHOMETRICS
- MBTI INTJ-T: The Architect, Analyst, Constant Improvement
- ENNEAGRAM 6w5: "The Guardian = Loyalist wing Investigator"
- VIA CHARACTER STRENGTHS: 1 Creativity, 2 Honesty, 3 Perspective, 4 Good Judgment, 5 Curiosity

## TESTIMONIALS
- **Dr. Aniruddha Chakraborty (Professor, IIT Mandi)**
  Anshay secured highest marks in all quizzes as well in final examination. Still I keep his final answer sheets with me for showing to future students taking the same course. His understanding on quantum mechanics and its application to spectroscopy was very clear and thorough. I am sure that he studies all subjects with the same passion. It is now-a-days very rare to find a student who crave for such deeper understanding of any subject. In my approx. a decade of teaching career I have not seen any engineering student who can come close to him in terms of 'understanding' any subject or topic. Therefore, I am more than happy to recommend him very strongly for a position.
- **Dr. Bharat Singh Rajpurohit (Professor, IIT Mandi)**
  Anshay impressed me from the first day with his abilities to be articulate about difficult concepts and swift at learning new things. He was always very attentive in class, had strong grasp over the subjects and could rapidly solve problems. He was also very active in lab, performed experiments with needed precautions and delivered his lab-work in excellent quality. His perseverance was apparent as he would adhere to problems and discussions until he achieves complete command over the concepts.
- **Ronald Van Immerzeel (Principal Engineer, Greyscaleai)**
  It was always a pleasure working with him. It didn't matter if it was a collaborative debug session (remote) or a task I gave to him, I was always happy with the results. He is always eager to learn and improve to become a better Engineer.
- **Daniel Cannistraci (VP of product, Greyscaleai)**
  Anshay was amazing to work with. A true team player and ready to help whenever needed. I worked directly with him in bridging the gap between hardware and software. Primary focus was designing the microcontroller interface. He was always available for testing and worked diligently with the hardware team to insure that the software was properly communicating. We worked tirelessly for several months on this project and I'm proud of what was accomplished. Would love to work with Anshay again and I highly recommend him.
- **Hansa Kary (Product Manager, Greyscaleai)**
  It is a pleasure working with Anshay! He's friendly, adaptable, talented, hardworking, and reliable. As a consummate full stack developer, Anshay is great at planning, collaborating, and developing solutions. I feel lucky to have worked with him, and I wish him great success.
- **MyLe Bui (QA Test Engineer, Greyscaleai)**
  I had a chance to work with Anshay for several months to improve our UI experience. He always bring new perspective and implements it in rapid pace. He effectively communicate and ensure to get things done by clear ownership. I would definitely recommend him.

## ADDITIONAL COURSES
### Robotics
- Foundations of Robot Motion
- Robot Dynamics
- Robot Kinematics
- Swarm Robotics

### Neuroscience
- Fundamental Neuroscience for Neuroimaging
- Medical Imaging technologies: MRI, fMRI, PET, CT, Ultrasound, XRay
- The Brain and space
- Synopses, Neurons and brains