

# Anukool Purohit

## Deep Learning Engineer

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### Skills

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### Experience

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#### Anukool Purohit

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<https://github.com/AnukoolPurohit>

Deep Learning engineer with a background in research and a good grasp of the mathematics behind deep learning.

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Machine Learning, Deep Learning, Reinforcement Learning, Artificial Intelligence, Robotics. Computer Vision, NLP.

Python, Matlab, C++.

PyTorch, PyTorch Lightning, FastAI. Scikit-learn, matplotlib, SQL.

FastAPI, Docker, Ray. Wandb, Tensorboard, Hydra, Flask, Kafka, Pub/Sub.

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#### Siterecon / Deep Learning Engineer

Feb 2022 - Present, Remote

- Worked on semantic segmentation on remote sensing imagery
- Set up scalable distributed infrastructure for training.
- Optimized inference engine and post-processing segmentation output for reducing inference time reducing computational costs by 65%.
- Optimized dataloaders reducing training time by 50%.
- Implemented data filtering pipeline.
- Improved model performance from 0.91 IoU to 0.94 IoU
- Implemented model monitoring

#### ReadInk / Software Engineer

September 2019 - July 2021, Remote

- Readink specializes in document analysis and handwriting recognition tech.
- Worked with the R&D team, helped convert the legacy codebase from Matlab and R into python and C++
- Helped improve the data quality and labelling process.
- Got exposed to a lot of exciting work in functional data analysis.

#### Kornea Digital / Data Scientist & AI consultant

March 2017 - June 2019, Remote

- Help design and improve products involving AI and Machine learning.
- Improved data collection and processing pipelines for clients.
- Leverage data analytics to support customer development, marketing and product management for clients.
- Build predictive models using various machine learning tools for clients
- Worked with the software team to help deploy said, predictive models.
- Setup up model and data monitoring systems.

### **Human Genetics Dept, University of Utah / Research Assistant**

May 2015 - November 2016, Salt Lake City, Utah

Worked with Dr Gabor Marth, on Genomic variant allele frequency modelling and estimation, and sub-clonal phylogeny reconstruction, via cancer sample next-generation sequencing data.

### **School of Computing, University of Utah / Research Assistant**

August 2014- May 2015, Salt Lake City, Utah

Joined Dr Tom Henderson's Lab for a rotation. Worked on the early stages of project BRECCIA's grant proposal.

### **University de Haute Alsace, ENSISA / Research Intern**

January 2011 - March 2011, Mulhouse France

- Worked with Lego Mindstorms nxt 2.0 robot.
- Built adapters for integrating the robot accelerometer, sonar, and IR sensor with RTMAPS 4.0 in C++.
- Characterized the sensor performance of these sensors.

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## **Education**

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### **B.K. Birla Institute of Engineering and Technology**

#### **Rajasthan Technology University/ B.Tech**

September 2009 - July 2013, Pilani

- Linear Algebra
- Design and Analysis of Algorithm
- Differential Equations
- Databases

### **School of Computing, University of Utah / PhD (Dropped out)**

August 2014 - November 2016, Salt Lake City, Utah

- Artificial intelligence

- Non-Linear Controls
- Multi-Agent Systems
- Motion Planning

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## Personal Projects

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## Some of the projects I have built,

### Sentiment Analysis

- Comparative analysis of deep learning models for sentiment analysis
- Implemented in Pytorch using the IMDB database.

### Image Recognition

- Implemented in Pytorch is a simple text classification algorithm on fashion MNIST.
- Served as a part of a scalable application.

### Emotion Recognition

- Compared different video classification algorithms on the AFEW dataset

### Investigating the role of the visual word form area during word recognition.

- Human performance of recognizing a word should degrade with higher word frequency
- We hypothesise that this is due to the visual word form area in the brain failing to recognize words that are moving too fast.
- We test this hypothesis by using FMRI data of a person performing word recognition tasks at different word frequencies.
- Frequency stimulus signal processed through an HRF function is encoded using a GLM.
- The resulting model shows that visual word form area HRF response shows an inverted 'U' shape change with increasing frequency.

### Decoding neural activity of handwriting planning in the motor cortex

- Our hypothesis is that since high dimensional neural activity in human brains can be represented by a small number of latent

factors, these latent factors can help improve the decoding of neural activity.

- We extract latent factors in the neural data, which were then used to predict the BCI output.

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## **Certifications & Short courses**

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Deep Learning Specialization Coursera 2018  
Nueromatch Academy Computational Neuroscience 2021  
Nueromatch Academy Deep Learning 2021

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## **Languages**

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Hindi (Native), English(Fluent), Marwadi(Native), French (A1 level)

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## **Hobbies**

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Reading, Sketching and Tennis