Anup Patel

Personal Data

Place and Date of Birth:	Uttar Pradesh, India | 28 Mar 1995
Address:	Varanasi, Uttar Pradesh, India
Language:	Hindi & English
Interest:	Machine Learning, Cricket
Website:	anup-patel.github.io
LinkedIn:	linkedin.com/in/anup2328
Github:	github.com/anup-patel

Work Experience

Aug 2020- Present — Specialist, Product Development
Mastercard

Working on developing solutions of some real life Machine Learning Problems for Mastercard. I am part of AI Garage team which is led by Nitendra Rajput.

May 2019- July 2019 — Data Science Intern
Airtel X-Labs

Worked on developing solutions of some real life Machine Learning Problems for Airtel X-Labs. This team was led by Shantanu Bhattacharya. During my three month internship i worked on projects like Prime Acquisition and ARPU upgrade.

Education

2018-2020 — Master of Technology in Computer Science
Indian Institute of Science, Bangalore
Advisor: Prof. Gopinath K.
GPA:7/10 | Detailed List of Courses

2013-2017 — Bachelor of Engineering in Computer Science and Engg.
Vivekananda Global University, Jaipur
GPA: 9.73/10 | Detailed List of Courses

2010-2012 — Higher Secondary at **Tulsi Vidya Niketan**, Varanasi
Percentage: 78.4/100

2010 — Secondary at **Varanasi Public School**, Varanasi
GPA: 9.6/100

Projects

Using Program Counters to Predict Execution Time of Programs through Machine learning
August 2019 - June 2020 | *Computer Science & Automation, IISc*
MTech Project \| Advisor: Prof. Gopinath K.

Modern workloads are a heterogeneous mix of parallel applications running on systems with complex architecture and they interfere with each other because of limited resources. These interference's lead to the degradation of system performance. Apart from interference, there may be many other factors that lead to poor system performance. To know about the root cause behind factors affecting system performance, one needs to analyse all hardware counters and should have good domain knowledge. But with the help of machine learning techniques, we can automatically analyse all the counters and find the root cause of the problem.

Community Detection in an Information Network

Oct 2019 | *Computer Science & Automation, IISc*

Course: Data Analytics | Advisor: Prof. Rajesh Sunderasan

Made use of the two different methods - Fiedler-vector and Louvain, to identify the two communities in a bottlenose-dolphins network. The dolphin network has a total of 62 nodes(i.e. dolphins) and 159 edges between them. While the Fiedler-vector method focuses on finding the second smallest eigen value of the graph Laplacian matrix and then cluster using K-Means technique, the Louvain uses Modularity Maximization approach to obtain the communities present in the network.

URL: github.com/anup-patel/CommunityDetector

Prime Acquisition

July 2019 | *Airtel X-Labs*

Advisor: Mr. Alok Mathur (Senior Data Scientist Airtel X Labs)

Problem statement was to predict whether a user will claim Prime membership in future or not. Our algorithm was able to achieve more than 85% accuracy.

ARPU Upgrade

May 2019-June 2019 | *Airtel X-Labs*

Advisor: Mr. Alok Mathur (Senior Data Scientist Airtel X Labs)

Problem statment was to Predict whether a user ARPU will increase or not in future based on its previous month usage. Result can be further used to analyse whether a user is happy with Airtel services or not.

Adversarially Regularized Graph Auto-Encoder for Graph Embedding

Feb 2019 - Apr 2019 | *Computer Science & Automation, IISc*

Course: Machine Learning | Advisor: Prof. Ambedkar Dukkipati

Graph Embedding is an effective method to represent graph data in a low dimensional space for graph analytics. This Framework encodes the topological structure and node content in a graph to a compact representation, on which decoder is trained to reconstruct the graph structure. Furthermore, the latent representation is enforced to match a prior distribution via an adversarial training scheme

Prediction of Mars' Orbital Plane

Sep 2019 | *Computer Science & Automation, IISc*

Course: Data Analytics | Advisor: Prof. Rajesh Sunderasan

Use mars opposition data (data collected by Tyco Brahe and used by Kepler) to find the projection of Mars position on the ecliptic plane and the distance of this projection to the centre. Find the best fit circle of mars orbit (assuming it lies in ecliptic plane) using the triangulation dataset.

Second part of it was to, using opposition and the geocentric latitudes of Mars, find the corresponding heliocentric latitudes of Mars. This is done as a course assignment in Data Analytics.

URL: github.com/anup-patel/Mars-Orbit-Predictor

Cricket Score Prediction using Duckworth-Lewis Method

Aug 2019 | *Computer Science & Automation, IISc*

Course: Data Analytics | Advisor: Prof. Rajesh Sunderasan

The task is to find the best fit run production functions in terms of wickets-in-hand(w) and overs-to-go(u). The given data file contains data on ODI matches from 1999 to 2011. The model assumed is as follows: $Z(u, w) = Z_0(w)(1 \quad exp(-L_u/Z_0(w)))$. To solve this problem I have used linear regression method to minimise the loss function of the actual score and predicted score. This is done as part of course assignment in Data Analytics.

URL: github.com/anup-patel/DLS-RunPredictor

Unsupervised Learning Task of Clustering
Oct 2018 - Nov 2018 | *Computer Science & Automation, IISc*
Course: Linear Algebra | Advisor: Prof. M.N.Murthy

Designed and implemented unsupervised learning task of clustering similar data points using k-means and spectral clustering algorithms. This project deals with eigenvalues, eigenvectors and one of their numerous applications, namely clustering. K-means and Spectral Clustering have been applied on two different datasets and observed the differences. This was done as a part of assignment.

Reconstruction and Classification of a subset of MNIST - a handwritten dataset
Sep 2018 | *Computer Science & Automation, IISc*
Course: Linear Algebra | Advisor: Prof. M.N.Murthy

MNIST is a handwritten dataset, originally has 60,000 digits with 784 (28x28) dimensions in its training set. In this assignment, a subset of MNIST dataset has been taken into account for reconstruction task using truncated SVD for different values of d and Reconstruction Error (RMSE) are calculated. Classification task for test points is conducted using K-NN algorithm for various K-values and classification accuracies are reported. This is done as a part of course assignment.

Accomplishments

GATE 2018	Secured All India Rank 142 in Computer Science
ISRO SC Written Test Dec 2017	Secured All India Rank 2
Gold Medalist 2013-2017	Gold Medalist in B.tech (2013-2017)

Certifications

May 2020	**Convolutional Neural Networks**
	Coursera	See Certificate

Computer Skills

Basic Knowledge:	tensorflow, keras, PySpark, html, css, LaTeX
Intermediate Knowledge:	python

Volunteer Experience

Mar 2019	Event Coordinator at Open Day
	Indian Institute of Science, Bangalore
	Worked as a coordinator for the Open Day event 'Opportunities at CSA', held on 23rd March, 2019. Part of Website design team. Also designed the Logo for Open Day, 2019.
Jul 2019	Volunteer at CSA Summer School
	Indian Institute of Science, Bangalore
	Part of the organising team for one-week long 7th CSA Undergraduate Summer School. I was responsible for interviewing candidates from various institutes and selecting good candidates to attend CSA summer school.
Jul 2019	Website Designer at CSA Summer School
	Indian Institute of Science, Bangalore
	Designed and managed the website for the CASL Lab, IISc. The details of the website can be found here.
Feb 2019 Mar 2019	Design Team Lead
	Open Day, Indian Institute of Science, Bangalore
	Led the Design Team for the Open Day event held on 23rd March, 2019. Responsible for designing the website, event logo and posters, flyers and banners. Website link : https://events.csa.iisc.ac.in/open-day-2019/

Master of Technology in COMPUTER SCIENCE

Exam	Credit Hrs
MTech Thesis	**24**
Topics in Pattern Recognition	3:1
Machine Learning	3:1
Deep Learning	3:1
Practical Data Science	3:1
Data Analytics	3:1
Computational Methods of Optimization	3:1
Linear Algebra & Probability	3:1
Theory of System Security	3:1
Cryptography	3:1
Distributed Computer System	3:1
Algorithms	3:1

Undergraduate Degree in COMPUTER SCIENCE & ENGG.

Grades

Exam	Grade	Grade Pts
Artificial Intelligence	A+	10
Data Mining & Warehouse	A+	10
Compiler Design	A+	10
Computer Network	A+	10
Computer Organization	A+	10
Programming in Java	A+	10
Information System Security	A+	10
Image Processing	A+	10
Mobile Computing	A+	10
Real Time Systems	A	9
Analysis of Algorithm	A	9
Theory of Computation	B+	8
Computer Graphics	B+	8
Operating System	A	9
Software Engineering	A+	10
Statistics & Probability theory	A	9
Database Management System	A+	10
Discrete Mathematics	A+	10
Engineering Mathematics - I	A+	10
Engineering Physics - I	A+	10
Engineering Chemistry	A+	10
Fundamental of Computers	A	9
Engineering Physics Lab- I	A+	10
Engineering Chemistry Lab - I	A+	10
Computer Programming Lab - I	A+	10
Engineering Mathematics - II	A+	10
Engineering Physics - II	A+	10
Environmental Chemistry	A+	10
Engineering Physics Lab- II	A+	10
Engineering Chemistry Lab - II	A+	10
Advanced Engineering Maths	A+	10
Data Structure & Algorithm	A+	10

Exam	Grade	Grade Pts
Electronic Devices and Circuits	A+	10
Microprocessor	A+	10
Principle of Programming Lan.	A+	10
Digital Electronics	A	9
Information theory and coding	B	8
Seminar	A+	10
Project	A+	10
	GPA	**9.73**