Naman **Biyani**

Sophomore Undergraduate · Computer Science and Engineering

(+91) 7003164776 | namanb@iitk.ac.in | namanbiyani.github.io | namanbiyani

Education

Indian Institute of Technology, Kanpur
Kanpur, India

BTech in Computer Science and Engineering — *Jul. 2018 - Apr 2022 [Expected]*

- Cumulative Grade Point/CGPA: 8.6 out of Max 10.0 (Currently)

Sri Sri Academy
Kolkata, West Bengal

Secondary School — *April 2010 - April 2018*

- Indian School Certificate Examination, ISC: 97.5(percentage)
- Indian Certificate of Secondary Education, ICSE: 97.4(percentage)

Assembly of God Church School
Kolkata, West Bengal

Primary School — *April 2003 - April 2010*

Skills

Programming Languages Python, Java, JavaScript, C, C++, Haskell, Octave, R, Erlang, Julia

Web Development HTML, CSS, Javascript, Django, React, MySQL

Utilities Git, Matlab, Latex, Docker, Travis, Bash, Photoshop

Projects and Experience

Deep Learning Applications
IIT Kanpur

Independent Research Project [GITHUB REPO] — *July 2019 - Present*

- Studied papers of Video Generation and prediction using Variational, Stochastic or both methods and trying to implement video representation by bi-LSTMs in a variational way.
- Studied papers of VQVAEs, special GANs like SRGAN,StyleGAN and StarGAN, NLPGAN papers and papers of Object detection using RCNNs and MaskRCNNs .
- Implemented VQ-VAEs, SRGAN, StarGAN and StyleGAN and got good results. NLPGANs are to be implemented.

Voting App using blockchains
Microsoft Codefundo competition

Microsoft ,Hyderabad [GITHUB REPO] — *August - September 2019*

- Learnt blockchains and the cryptography behind the security of blockchains.
- Made a voting app using Microsoft Azure Blockchain services for a more secure election.

Probabilistic Machine Learning
Programming Club, IIT Kanpur

Mentor - Aniket Das and Yatin Dandi [GITHUB REPO] — *May 2019 - August 2019*

- Deep dived into Probabilty distributions(specially Gaussians), Bayes Theorem, Information theory and the major differences between Frequentist and Probabilistic approach of machine learning
- Studied and implemented Bayesian Linear Regression(on Boston House-price Dataset), Expectataion Maximization algorithm(on MNIST dataset), Probabilistic Principal Componenent analysis(on MNIST dataset) and Variational Inferenece (On Boston house-price dataset)
- Deep dived into Bayesian Matrix Factorization and implemented Recommender system Probabilistic Bayesian Matrix Factorization using Gaussian and Poisson priors on MovieLens-100K dataset and then compared the results .
- Implemented Online EM algorithms (Incremental and stepwise) and compatred their results with batch EM algoritm . Also studied about Stochastic Variational Inference in brief .
- Studied about Advances in Variational Inference like Black Box Variational Inference and the tricks used to reduce its variance . Implemented Variational Autoencoders on MNIST dataset and compared the results using the reparameterization trick .

Haskell Scrabble Solver
Programming Club, IIT Kanpur

Mentor - Aditya Gulati [GITHUB REPO] — *January 2019 - August 2019*

- Learnt the concepts of functional programming through Haskell, one of the most widely used functional programming languages .
- Deep dived into the concepts of Type theory, Currying , Recursion, Immutability, File Systems, Pattern Matching and Laziness of Haskell
- Made a Scrabble Solver in Haskell (A Two Player version and a PlayWIthComputer version) which used Lexicograhical Search, Regex-type functions(wriiten from scratch) and Quick Sorts as the major algorithms .

A Study in GANs

Association of Computing activities(ACA) , IIT Kanpur

Mentor - Avik Pal and Aniket Das [GITHUB REPO] *January 2019 - July 2019*

- Studied Neural convolutional neural networks in depth and implemented special architecutures (ResNET, DenseNET, VGG,etc) using Pytorch framework .
- Did a basic literature survey on Generative networks and then studied GANs , implemented basic GANs and DCGANs on MNIST and CIFAR-10 dataset using Pytorch and TorchGAN(Framework for training of GANs).
- Implemented Class Conditioned GANs like CGAN, ACGAN and InfoGAN on CelebA , FashionMNIST and Anime dataset and compared the results using different losses and metrics .
- Implemented Style Transfer GANs like DiscoGAN, CycleGAN and StarGAN on CelebA dataset using Pytorch and TorchGAN .
- Implemented special GANs like SRGAN and SAGAN .
- Tried implementing a YAML parser and dataloader for TorchGAN Framework.

Reinforcement Learning and its apllications in Atari Games

Stamatics, IIT Kanpur

Mentor - Kushagra Gupta [GITHUB REPO] *January 2019 - April 2019*

- Studied basics of Reinforcement Learning through David Silver Lectures and few portions of Sutton and Bartol's book on Reinforcement Learning
- Solved Dennybritz's excercises of Reinforcement Learning on topics Dynamic Programming, Monte-Carlo Learning , Temporal Difference Learning , Value Function Approximation , SARSA , Q-Learing and Policy Gradient methods .
- Implemented DQN and A3C reinforcement learning algorithms on Breakout and Pong Atari Games and trained it the models to a descent level and then compared the results.

Rotary Club

Consulting Group, IIT Kanpur

Data Science team member *December 2018 - January*

- Studied the history of polio in the world and the possibilities of it being caused again in India.
- Developed a framework which would predict the future of Polio in India and help Rotary Club in efficient resource allocation in various parts of India to eradicate polio.

Relevant Courses

Introduction to Programming	Discrete Mathematics for Computer Science
Data Structures and Algorithms	Probability & Statistics(i)
Software Development and Operations(i)	Special Topics in Natural Language Processing(i)
Logic for Computer Science(i)	Introduction to Machine Learning(@)
Computer Architecture(i)	Modern Cryptology(i)

@: Auditted *i: Registered for this course in upcoming Fall Semester*

Achivements

2019	**Academic Excellence Award**, For exceptional Academic performance in freshman year	*IIT Kanpur*
2018	**All India Rank 198**, Joint Entrance Examination Advance, 200,000 candidates	*India*
2018	**All India Rank 379**, Joint Entrance Examination Mains, 1.5 million candidates	*India*
2017	**KVPY Scholarship Awardee**, Indian Institue Of Science Bangalore, India	*India*

Positions of responsibitly

Programming Club

IIT Kanpur

Secretary *April 2019 - present*

- Responsible for conducting activities and competitions for campus community and conducting lectures and workshops on different topics for interested students .