

Nishit Asnani

FOURTH YEAR UNDERGRADUATE STUDENT

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Education

Indian Institute of Technology Kanpur

Kanpur, India

B.TECH., COMPUTER SCIENCE AND ENGINEERING

2014-Present

- CPI: **9.4 / 10**. Awarded **Academic Excellence** Award for 2014-15 and 2015-16.
- **Minor in English Literature** from the Dept. of Humanities and Social Sciences

Campion School

Bhopal, India

CENTRAL BOARD FOR SECONDARY EDUCATION

2000-2014

- **97.2%** marks in Class 12 and CGPA **10/10** in Class 10

Research & Projects

Paraphrase Generation Using Deep Generative Models

IIT Kanpur

PROBABILISTIC MACHINE LEARNING, DR. PIYUSH RAI, [Report], [Presentation]

Sep - Nov 2017

- Developed a model to generate multiple paraphrases for a source sentence using a **variational autoencoder**
- Inserted **control variables** in the latent space to specify the length of the paraphrase required
- Achieved **better BLEU scores** than vanilla seq2seq models, generated sentences perform **better than ground truth** paraphrases on human evaluation for MSCOCO dataset

Explicit Exploration in Random Forests

IIT Kanpur

UNDERGRADUATE PROJECT, DR. PURUSHOTTAM KAR, [Report], [Presentation]

Jan - Apr 2017

- Objective was to introduce an explicit exploration control knob in random forests for multi-label learning
- Experimented with Upper Confidence Bound algorithm (**UCB**) and **Thompson Sampling** over the features at each level to decide split criterion at each node in a random forest for binary classification
- Showed experimentally that with **ranking loss** as the loss function, UCB and TS with level information consistently beat random forests with empirical mean or random split criteria for major classification datasets (spam, MNIST etc)

Optimizing Sequence to Sequence Models with a Residual Loss

IIT Kanpur

UNDERGRADUATE PROJECT, DR. PURUSHOTTAM KAR, [Report], [Presentation]

Aug - Nov 2017

- Designed a Residual Loss for optimizing sequence to sequence models using RNNs, that tries to **approximate the BLEU score**
- Experimented with various combinations of the residual loss with cross entropy and noted insights on the functioning of RNNs

Work Experience

Google

Hyderabad, India

SOFTWARE ENGINEERING INTERN, ENTERPRISE MOBILITY MANAGEMENT

May - July 2017

- Built an end to end system to facilitate **registration of a Windows 10 device with Google's Device Management Server**
- Developed a marshaller and an unmarshaller to convert messages between SOAP XML and Protocol Buffers
- Developed a module that receives a Certificate Signing Request and generates a client certificate signed using Google's root certificate

StrideAI

Bangalore, India

MACHINE LEARNING / NLP INTERN

Dec 2016

- Built a model to generate **abstractive document summaries** using an encoder-decoder sequence to sequence LSTM with attention
- Built a module for **sentence similarity** computation using unsupervised sentence embeddings

New York Office, IIT Kanpur

IIT Kanpur

MACHINE LEARNING INTERN, PROF. MANINDRA AGRAWAL, [Post]

May - Dec 2016

- Developed an online model to learn **document embeddings** using a **Deep Belief Network**. Achieved accuracies of over 70% on the 20 Newsgroups dataset.
- Built a publish-subscribe model for processing documents to generate embeddings using Akka actors and Apache Kafka on Scala

Other Relevant Projects

Clustering for Email Forensics

IIT Kanpur

PROF. NASIR MEMON, NEW YORK UNIVERSITY, RESEARCH TRACK EXPLORATION (RTE) [Post]

May - June 2016

- Designed a clustering algorithm for email retrieval by an investigator, based on **paragraph vectors** and on details of the sender

Playing Pong using Reinforcement Learning

IIT Kanpur

MACHINE LEARNING TECHNIQUES, DR. PIYUSH RAI, [Report], [Presentation]

Oct - Nov 2016

- Developed a policy gradient network and a double duelling deep Q network that beat the computer agent in the Atari game Pong.

Academic Achievements

- 2014 All India Rank **161**, **JEE Advanced** among 150,000 students
- 2014 All India Rank **172**, **JEE Main** among 1.4 million candidates
- 2013 All India Rank **18**, **KVPY Fellowship**, among 40,000 students
- 2013 Qualified, Regional Mathematical Olympiad (**RMO**), Zonal Informatics Olympiad (**ZIO**), National Standard Examination in Physics (**NSEP**) and Junior Science (**NSEJS**) conducted by IAPT.
- 2010 Scholar, **National Talent Search Examination (NTSE)** among around 200,000 candidates
- 2016 Secured **A* (outstanding)**, **Data Structures and Algorithms**, Electrodynamics and Intro to Biology
- 2016 Secured **A-**, Course: "Leadership in Organizations" at **London School of Economics Summer School**
- 2011 Attended, an International **Computing Camp** at the **National University of Singapore** having **Scholarship** from Science Olympiad Foundation (SOF)

Relevant Coursework

Machine Learning ML Techniques, Topics in Computer Vision, Probabilistic ML, Online Learning and Optimization (audit)

Algorithms and Theory Data Structures and Algorithms, Design and Analysis of Algorithms, Theory of Computation

Systems Computer Organization, Operating Systems, Compiler Design, Computer Networks, Computer Laboratory 1 and 2

Mathematics Probability and Statistics, Discrete Mathematics, Logic, Abstract Algebra, Linear Algebra and ODE, Real Analysis

Technical Skills

Programming C, C++, Python, Java, Scala, \LaTeX , shell scripting, Git, Assembly, SQL

Software / Libraries TensorFlow, Numpy, scikit-learn, Keras, Natural Language Toolkit, Apache Kafka, BouncyCastle

Mentorship

- 2017 **Course Mentor**, Intro to Machine Learning: guided student projects, assisted doubt clearance
- 2017 **Mentored**, 5 freshmen for a semester project in sentiment analysis under Association of Computing Activities, IITK
- 2015 **Academic Mentor**, Counselling Service IITK, Took remedial classes of up to 350 students and provided one-to-one mentoring to weak students for first year mathematics

Extra Curricular Activities

MeetApp Developed a Facebook Messenger Bot that suggests an optimal venue for a group meet-up given the locations of the participants. **Won** an Intra-IITK **Startup Pitch Competition** "Pitch Prime" during Entrepreneurship Summit 2017.

Coordinator, English Literary Society Led a group of 16 secretaries and conducted campus literary events in 2016-17. Published the annual **literary magazine** "Meander", and maintained the **literary society blog**.

Author Wrote **three mystery novels**, one of which was published, titled "Death in the Dead Sea"

Blogger Have been regularly posting short stories and articles [[Link](#)]