

# Travel Report on attending First Nepal Winter School in AI - Kathmandu, Nepal

Debesh Jha, 20-30th December, 2018

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## 1. FIRST NEPAL WINTER SCHOOL IN AI

The First Nepal Winter School in AI was held on Prime College, Kathmandu, Nepal, from 20-30 December 2018.

The goal of the winter school was to provide an outline for state-of-the-art research in Machine Learning (ML) and Artificial Intelligence (AI). It offered the students/ professionals with the prerequisite fundamentals of mathematics, statistics, programming, and paper reading and writing skills needed for beginning a career in the domain of AI. It also encouraged young researchers to work on challenging high impact AI problems in computer vision and image processing, natural language processing, neuroscience etc. It was an excellent opportunity to discuss cutting-edge technological advancements in AI between young researchers and the professors and research scientist. The winter school played an essential role in democratising AI by encouraging the next generation of leaders in AI from developing countries.

The First Nepal Winter School comprise a series of lectures in probability and statistics, ML, Optimization techniques, Computational Neuroscience, Linear Algebra, Advanced Deep Learning, Internet of Things, Reinforcement learning, Graphical Modeling, 3D-image analysis/Medical image analysis, and Computer Vision (Deep face Recognition). The classes were followed by lab sessions and scientific paper reading/writing sessions delivered by invited world-class experts. The experts include some alumni who graduated from the local engineering colleges and have good experience of the teaching methodology there. We also had a social event ( a day hiking and dinner) to get to introduce among researchers, network and collaborate.

It was an excellent opportunity to meet the researchers from the renowned universities like Massachusetts Institute of Technology, Stanford University, New York University, Imperial College London, University of Montreal, University of Oslo etc. I took this opportunity to introduce my self and COINS. The participants of this 2018 winter school was undergraduate and graduate students, young researchers, engineers, and experts from academia and industry.

There were so many inspiring presentations which are not possible to discuss here. One of the most inspiring lectures was from Bishesh Khanal and Taman Upadhaya on Medical Imaging Informatics. As I am also doing my PhD research on medical images and videos using machine learning and deep learning algorithm, it was beneficial for me to have a recap at the current state-of-the-art algorithm. The discussion about the ML challenges and Issues, and Privacy and Security concern in medical imaging domains were fascinating.

The talk from Ajad Chhatkulai and Bishesh Khanal on optimization technique, and Image Representation, Processing, and Computer Vision where they presented about Image formation, image filters, feature extraction, feature reduction, Convolutional Neural Network, and autoencoders, and different optimization techniques, was also beneficial. These lectures were followed by practical sessions where we implemented some of these methods in the lab.



Fig. 1. Debesh Jha from COINS at the 2018 First Nepal Winter School in AI



Fig. 2. Class atmosphere at the 2018 First Nepal Winter School in AI

I am thankful to the COINS for granting me travel support, that provided me with an opportunity to attend this winter school, where I learned from the distinguished speakers, gained valuable experiences, and also got chance to meet few research scholars from the same background.



Fig. 3. Participating at the 2018 First Nepal Winter school in AI - Debesh Jha (right) and Ashish Rauniyar (left)

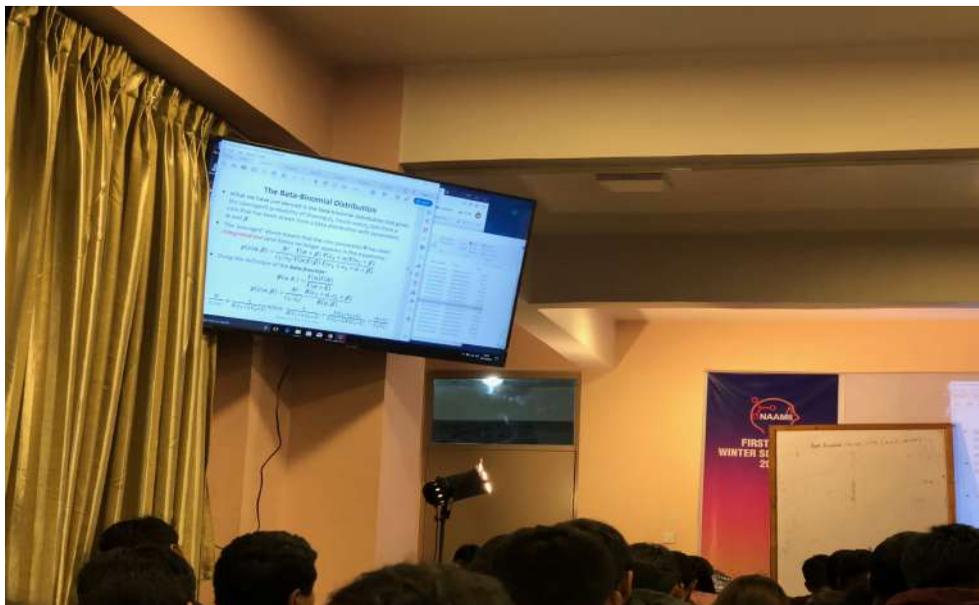


Fig. 4. A screen display of the lecture slide of probability and statistics for ML



Fig. 5. Debesh Jha and Ashish Raunyar from COINS with other winter school participants



Fig. 6. Discussion session