Amit Yadav

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Education

Year	Degree	Institute	CGPA/%
2016-present	B.Tech, Computer Science and Engineering	Indian Institute of technology Kanpur	7.76/10
2016	XII (CBSE)	RPS Sr. Sec. School, Mohindergarh	96.4%
2014	X (CBSE)	RPS Sr. Sec. School, Mohindergarh	10.0/10.0

Honors and Rewards

2016 **All India Rank 429,** Joint entrance Exam Mains, 1.5 million candidates *India*
2016 **All India Rank 497,** Joint Entrance Exam Advanced, 200,000 candidates *India*
2016 **KVPY Fellowship Awardee,** Indian Institute of Science and Government of India *Bangalore, India*
2016 **All India Rank 36,** National Entrance Scholarship Test, NISER Bhubaneswar *Bhubaneswar, India*
2014 **National Talent Search Examination (NTSE) Scholarship Awardee** *Govt. of India*
2017 **CHAOS, Techkriti'17 winner,** Coding in unknown language competition *IIT Kanpur*

Projects

GO Compiler *Course Project under Prof. Amey Karkare* *Jan. – April. 2019*
- Built a working compiler for basic features of **GO** programming language.
- Translated **GO** language into **assembly** language using **python** as the implementation language.

GemOS *Course Project under Prof. Debadatta Mishra* *Jan. – April. 2019*
- Worked on an educational operating system, GemOS, as a part of Operating Systems course.
- Implemented memory virtualization, system calls and task scheduling.

Reinforcement Learning for Temporal Logic Goal *Course Project under Prof. Indranil Saha* *Jan. – April. 2019*
- Explored approaches for reward engineering for reinforcement learning algorithms using temporal logic constraints.
- Read and presented more than 5 research papers. *[Report][Slides]*

Reinforcement Learning Based Control of Quadrotor *Prof. Indranil Saha, IIT Kanpur* *May – Dec. 2018*
- Working on a method to control a quadrotor with a neural network trained using reinforcement learning techniques.
- Aim: To follow a given trajectory with minimum error in position in presence of environmental disturbances like wind.
- Used PX4 autopilot to collect flight data and Gazebo for simulation purposes.
- Explored approaches for extending the problem to real world environment.

Automated Image Captioning *Course Project under Prof. Piyush Rai* *Sept. – Dec. 2018*
- Developing visual systems that can generate contextual descriptions about objects in images.
- Using CNN implementation (ResNet and vgg-16) as an encoder for extracting features from images, while RNN implementation (LSTM and GRU) as a decoder that generates captions.

Autonomous Atari game player *Self-Project* *July 2018*
- Implemented Deep Deterministic Policy Gradient (DDPG) algorithm to train an Atari game player.
- Used OpenAI's GYM environment with tensorflow as backend.
- Trained multiple classical-control based games like Pendulum, Mountain Car, Ping Pong etc.

Remote Shell Access Service *Kritsnam Technologies, IIT Kanpur* *Dec. 2017 – Jan. 2018*
- Developed a secure shell access service for remotely located unattended IoT devices.
- Used **Autossh** to set up a reverse SSH tunnel as soon as the device receives power and network.
- **Scope** : Service can be used as a free alternative to existing paid services like ngrok to manage any number of embedded devices.

Ethical Hacking *Programming Club, IIT Kanpur* *May - July 2017*
- Learnt and practiced buffer/stack overflows, Assembly language, GDB debugging, shell injection etc. to implement syscalls, Process Scheduling and Memory Management.
- Participated in two Capture The Flag contests and led the team to winning by solving problems in minimum time.

Sentiment Analysis *Association of Computing Activities, CSE Dept. IIT Kanpur* *Feb. – Apr. 2017*
- Built a sentiment analyzer using supervised machine learning to classify IMDb reviews into positive or negative.
- Achieved **84% accuracy** using **Naïve-Bayes Classifier** on a test set other than training set.

Solar Intensity Follower *Robotics Club, IIT Kanpur* *Dec. 2016*
- Built a device to turn solar panels in the direction of maximum sunlight using LDR sensors and *Arduino UNO.*
- Adjudged as one of the **best projects**, while being a freshman. *[Report]*

Voluntary Work

Leader **Ultimate (Frisbee) Hobby Group** *Aug. 2018 – Present*

- Leading a group of 60+ students to conduct regular workshops and tournaments inside the institute.
- Also responsible for promoting the game in and around the campus.

Senior Executive **Academic Research Cell** *Aug. 2017 – Mar. 2018*

- Responsible for encouraging research activities in the campus by conducting talks and workshops.
- Successfully organized **Student Research Convention'18,** aimed to bring top researchers and students across the country under one roof.

Technical Skills

Languages	C, C++, Python, Assembly, R, Matlab/Octave
Libraries	Tensorflow, Keras, PyTorch, NLTK
Utilities	Vim, Linux Shell Utilities, Git, GDB, RotorS

Relevant Courses

Probabilistic Modelling and Inference
Compiler Design
Operating Systems
Formal Methods
Introduction to Machine Learning
Advanced Algorithms
Visual Recognition
Reinforcement Learning ^
Probability and Statistics

^ online course by Prof. David Silver, UCL