Amit **Yadav**

FINAL YEAR UNDERGRADUATE

Indian Institute of Technology Kanpur · Computer Science and Engineering

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Education

Indian Institute of Technology Kanpur | *Kanpur, India*
B.TECH IN COMPUTER SCIENCE AND ENGINEERING | *2016 - Present*
- CGPA: 7.76/10.0

RPS Sr. Sec. School, Mohindergarh | *Mohindergarh, Haryana*
ALL INDIA SENIOR SCHOOL CERTIFICATE EXAMINATION, CLASS XII | *2016*
- Percentage score: 96.4%

RPS Sr. Sec. School, Mohindergarh | *Mohindergarh, Haryana*
ALL INDIA SENIOR SCHOOL CERTIFICATE EXAMINATION, CLASS X | *2014*
- CGPA: 10.0/10.0

Honors & Awards

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	**NTSE Scholarship Awardee**, Government of India	*India*
2017	**CHAOS, Techkriti'17 winner**, Coding in unknown language competition	*India*
2018	**Microsoft AI challenge**, Reached final Phase	*India*

Work Experience

Samsung Research Institute Bangalore | *Bangalore*
STUDENT TRAINEE | *May – July 2019*
- Worked on a computer vision based task while being a part of SAIT (Samsung Advanced Institute of Technology) team.
- Received a pre-placement offer for a software developer role at the end of the internship.

Reinforcement Learning Based Control of Quadrotor | *IIT Kanpur*
RESEARCH INTERNSHIP UNDER PROF. INDRANIL SAHA | *May – Dec. 2018*
- Worked 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.**[Report][Slides]**

Remote Shell Access Service | *IIT Kanpur*
INTERNSHIP AT KRITSNAM TECHNOLOGIES | *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
- Scope : Service can be used as a free alternative to existing paid services like ngrok to manage any number of embedded devices.

Projects

Reinforcement Learning for Temporal Logic Goal | *IIT Kanpur*
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]**

Golang Compiler | *IIT Kanpur*
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

IIT Kanpur

Aug. – Dec. 2018

- Worked on an educational operating system, GemOS, as a part of Operating Systems course.
- Implemented memory virtualization, system calls and task scheduling.

Automated Image Captioning
COURSE PROJECT UNDER PROF. PIYUSH RAI

IIT Kanpur

Sept. – Dec. 2018

- Worked on developing visual systems that can generate contextual descriptions about objects in images.
- Used 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.

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

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.

Skills

Programming	Python, C/C++, Matlab/Octave
Libraries	Tensorflow, Pytorch, Keras, NLTK, Scikit-Learn
Utilities	Vim, Linux Shell Utilities, Git, GDB, RotorS, , LaTeX

Relevant Courses

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

*online course by Prof. David Silver

Extracurricular Activity

Leader
ULTIMATE (FRISBEE) HOBBY GROUP

IIT Kanpur

April 2019 - PRESENT

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

Project Mentor
ASSOIACION OF COMPUTING ACTIVITIES

IIT Kanpur

Feb. – April. 2019

- Mentored 10 freshmen for a semester long project in Reinforcement Learning under Association of Computing Activities, IITK.

Senior Executive
ACADEMIC RESEARCH CELL

IIT Kanpur

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 researchers and students across the country under one roof.