

Amit Yadav

FINAL YEAR UNDERGRADUATE

Indian Institute of Technology Kanpur · Computer Science and Engineering

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Education

Indian Institute of Technology Kanpur

B.TECH IN COMPUTER SCIENCE AND ENGINEERING

Kanpur, India

2016 - 2020 (exp)

RPS Sr. Sec. School

ALL INDIA SENIOR SCHOOL CERTIFICATE EXAMINATION, CLASS XII

Mohindergarh, Haryana

2016

RPS Sr. Sec. School

ALL INDIA SENIOR SCHOOL CERTIFICATE EXAMINATION, CLASS X

Mohindergarh, Haryana

2014

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

STUDENT TRAINEE

Bangalore

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

RESEARCH INTERNSHIP UNDER PROF. INDRANIL SAHA

IIT Kanpur

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

INTERNSHIP AT 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
- 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

COURSE PROJECT UNDER PROF. INDRANIL SAHA

IIT Kanpur

Jan. - April 2019

- Explored approaches for reward engineering for reinforcement learning algorithms using temporal logic constraints.
- Learnt about STL, TLTL, robustness degree of STL and TLTL, τ -MDP, horizon length etc. [\[Report\]](#)[\[Slides\]](#)

Golang Compiler

COURSE PROJECT UNDER PROF. AMEY KARKARE

IIT Kanpur

Jan. - April 2019

- Implemented a compiler for a fully functional subset of Go programming language in python from scratch.
- Used ply and yacc to obtain the parse tree and SPIM for generating the binary from assembly code.

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, MIPS
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	Computer Aided Verification**	Probability and Statistics
*online course by Prof. David Silver	**ongoing	

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

ASSOCIATION 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.