

# AKSHAY SETHI

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A-80 Meera Bagh, New Delhi, 110087

## EDUCATION

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**Indraprastha Institute of Information Technology, Delhi**

*August 2014 - April 2018*

B.Tech (Hons.) in Electronics and Communication & Engineering

Minor in Artificial Intelligence

Department Rank - 1

Overall GPA: 8.93/10

Best Academic Performance Award and Best Thesis Award

## RELEVANT COURSEWORK

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Artificial Intelligence, Advanced Machine Learning, Machine learning, Deep Learning

Computer Vision, Image Analysis, Robotics, Compressive Sensing, Reinforcement Learning

Optimal Control Theory, Statistical Signal Processing, Data Structures and Algorithms

## TECHNICAL SKILLS

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**Expertise Area**

Deep Learning, Machine Learning, Computer Vision, NL Processing

**Programming Languages**

Python, Java, C++, C, Matlab

**Deep Learning Libraries**

Keras, Pytorch, Tensorflow, Caffe, Mxnet

**Libraries**

Scikit-learn, OpenCV, NLTK, Numpy, Flask, Matplotlib

**Tools**

Eclipse, Code-Blocks, Android Studio, Sublime Text

## EXPERIENCE

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**IBM Research**

May 2018 - Present

*Research Engineer*

*Bangalore, India*

- Working on Problems in the intersection of Artificial Intelligence and Systems Research.
- Working on Problems in Meta-Learning. Manuscript to be submitted to IJCAI-2019
- Building Extensions of DLPaper2Code work done during internship last year.
- Wrote several modules on Neural Network Modeler available via Watson Studio
- Worked on Testing Framework for DL Models. Manuscript under submission in AAI-2019

**IBM Research**

May 2017 - July 2017

*Research Internship*

*Bangalore, India*

- Worked on the DARVIZ Deep Learning platform.
- Implemented a feature which converts Deep Learning research papers to associated code in libraries like Keras, Theano and Tensorflow.
- Wrote a PDF Ingestion Engine in Python.
- Two Papers Accepted in AAI'18 and one in CODS-COMAD'18.

**Coding Elements**

March 2018 - May 2018

*Part Time Instructor*

*New Delhi, India*

- Taught Courses on Machine Learning and Python.
- Covered various Aspects of Machine Learning including Supervised, Unsupervised and Reinforcement.

- Taught students to develop state of the art Deep learning systems including OCR engine and Self-Driving Car Simulator.

### **IIIT-Delhi**

*Research Internship*

May 2016 - July 2016

*New Delhi, India*

- Worked on Medical Image Analysis using Deep Learning Techniques.
- Used Sparse Stacked Autoencoder for purpose of automated Segmentation of Basal Ganglia region in Brain MRI scans.
- Paper accepted in ICVGIP'16.

### **Cube 26 Software**

*Data Science Internship*

March 2016 - April 2016

*New Delhi, India*

- Worked on Monaural Speech Separation using Deep Neural Networks.
- Preprocessed Data using STFT and used the Deep Network for the prediction of Background and Foreground Masks.

## **PUBLICATIONS**

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- Systematic Testing of DL Models using Dataset Characterization  
Under Submission to AAAI Conference on Artificial Intelligence (AAAI), 2019  
**Akshay Sethi**, Srikant Tamilselvam, Anush Sankaran, Senthil Mani
- Dictionary Learning Based Sparse Representation Multi-Label Classifier  
Under Submission to Trans. of Knowledge and Data Engineering  
**Akshay Sethi**, Anugshul Majumdar, Mayank Vatsa, Richa Singh
- Residual Codean Autoencoder for Facial Attribute Analysis  
Pattern Recognition Letters, 2018  
**Akshay Sethi**, Maneet Singh, Richa Singh, Mayank Vatsa
- DLPaper2Code: Auto-generation of Code from Deep Learning Research Papers  
AAAI Conference on Artificial Intelligence (AAAI), 2018  
**Akshay Sethi**, Anush Sankaran, Naveen Panwar, Shreya Khare, Senthil Mani
- DARVIZ : A Visually IDE to build Deep Learning Models  
AAAI Conference on Artificial Intelligence (AAAI) Demo Track, 2018  
Anush Sankaran, Naveen Panwar, Shreya Khare, Senthil Mani, **Akshay Sethi**, Rahul Aralikkatte, Neelamadhav Gantayat
- DARVIZ: A Visual IDE to build Deep Learning Models  
The ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) Demo Track, 2018  
Shreya Khare, Naveen Panwar, **Akshay Sethi**, Anush Sankaran, Senthil Mani, Rahul Aralikkatte, Neelamadhav Gantayat
- Deep Neural Networks for Segmentation of Basal Ganglia substructures in Brain MR Images  
The Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), 2016  
**Akshay Sethi**, Ayush Agarwal, Akshat Sinha, Chetan Arora, Anubha Gupta

## SELECTED PROJECTS

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- **Limit of Augmentation using GANs**

Guide: Dr. Mayank Vatsa and Dr. Richa Singh

Worked on learnt data augmentation using GANs quantifying the amount of data augmentation generated by the GAN models.

- **Sub-Class Generative Adversarial Networks**

Guide: Dr. Mayank Vatsa and Dr. Richa Singh

Work on state of the art image generation Generative Adversarial Network models exploiting subclass information present in datasets like CIFAR100 and Adience.

- **Neural Architecture Search**

Guide : Dr.Mayank Vatsa

Worked on data-depend prediction of Neural Architecture using RNNs, Evolutionary algorithms and Reinforcement learning.

- **Facial Attribute Guided Image Generation**

Guide : Dr.Richa Singh

Worked on Image generation using GANs conditioned on various facial attributes like Smile, Age etc. with the identity preserving constraint.

- **Deep RL in 3D environments**

Guide : Dr.Sanjit Kaul

Trained DQN, Double DQN, Dueling DQN and DRQN( Recurrent Q-Learning) for the FPS game of DOOM.

- **Multi-Label Classification**

Guide : Dr.Angshul Majumdar

Worked on Multi-Label Classification using sparse representation learning and dictionary learning based methods.

- **Fine Level Classification in Images**

Guide : Dr.Chetan Arora

Worked on Fine level classification of clothing items such as Shoes using various Deep Learning techniques.

- **Deep Reinforcement Learning**

Guide : Dr.Saket Anand and Dr.Anubha Gupta

Worked on AI agents for playing popular mobile games such as Flappy Birds and Pong using Deep Q learning and policy gradients.

- **Face Recognition in Indian Celebrities**

Guide : Dr. Chetan Arora and Dr.Saket Anand

Worked on Image recognition of various Indian Celebrities using CNNs and various other neural networks.