

AKSHAY SETHI

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A-80 Meera Bagh, New Delhi, 110087

EDUCATION

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

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

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

Borealis AI

March 2019 - Present

Research Engineer

Waterloo, Canada

- Working in the areas of Knowledge Graphs and Natural Language Processing at Waterloo Lab headed by Prof. Pascal Poupart.
- Working on Problems in Artificial Intelligence and Machine Learning.

IBM Research

May 2018 - March 2019

Research Engineer

Bangalore, India

- Working on Problems in the intersection of Artificial Intelligence and Systems Research.
- Working on Problems in AutoML.
- 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 FSE-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 AAAI'18 and one in CODS-COMAD'18.

Coding Elements
Part Time Instructor

March 2018 - May 2018
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.

PATENTS

- System and Method for Guided Policy Generation from Data for Augmentation
Akshay Sethi, Srikant Tamilselvam, Anush Sankaran, Senthil Mani
- System and Method for Data Insights based Test Case Generation
Shreya Khare, Srikant Tamilselvam, Anush Sankaran, Senthil Mani, **Akshay Sethi**

PUBLICATIONS

- Coverage Testing of Deep Learning Models using Dataset Characterization
Under Submission to Foundations of Software Engineering Conference (FSE), 2019
Akshay Sethi, Senthil Mani, Srikant Tamilselvam, Anush Sankaran
- 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

- **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.