AKSHAY SETHI

(+91)-9899030331 · sethi.akshay@outlook.com · https://akset8.github.io
A-80, Meera Bagh, Paschim Vihar, 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	Machine (Deep) Learning, Computer Vision, Graph Learning, Time Series
Programming Languages	Python, C++, C, Matlab, Java
Deep Learning Libraries	Pytorch, Tensorflow, Keras, Caffe, Mxnet
Libraries	Scikit-learn, OpenCV, NLTK, Numpy, Flask, MySQL
Tools	Kubernetes, Docker, Jenkins, MLflow, Spark

EXPERIENCE

Mastercard June 2021 - Present
Senior Research Engineer *Gurgaon, India*

· Research on graph learning for utilizing graph structure between merchants and customers
· Downstream applications include carbon footprint estimation, next transaction prediction
· Foundation Models for Graphs, potentially overhaul the current transactions processing algorithms
· Research paper on Neural Models for Tabular Data accepted in IJCNN-2023
· Research paper on Universal Graph Embeddings using GNNs accepted in ECML PKDD-2023

Huawei Noah's Ark March 2020 - April 2021
Research Engineer, Computer Vision *Toronto, Canada*

· Research on facial estimation problems (Gaze modeling, Drowsiness) and object tracking
· Build android applications for deploying above research involving Java and C++ development
· Research paper on emotion recognition accepted in FG 2021

Borealis AI February 2019 - Feb 2020
Research Software Engineer *Waterloo, Canada*

· Worked on problems in FinTech domain utilizing NLP techniques
· Worked on an in-house ML platform for tracking, reproducibility and visualization of ML model runs
· Contributed to a survey paper on Dynamic Knowledge Graphs, accepted in JMLR

IBM Research May 2018 - February 2019
Research Engineer *New Delhi, India*

- Wrote the Pytorch backend of Neural Network Modeler (NNM) available via Watson Studio
- Built Extensions of DLPaper2Code feature in NNM, improved object detection and OCR capabilities
- Worked on a better Testing Framework for DL Models. Manuscript : https://arxiv.org/pdf/1911.07309.pdf
- Two Papers Accepted in AAAI'18

IBM Research May 2017 - July 2017
Research Internship *Bangalore, India*

- Worked on Neural Network Modeler (a drag-n-drop Deep Learning IDE).
- 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 March 2018 - March 2019
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 May 2016 - July 2016
Research Internship *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 March 2016 - April 2016
Data Science Internship *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 Foreground Mask.

PUBLICATIONS

- AutoTabTransformer: Hierarchical Transformers for Self and Semi Supervised Learning in Tabular Data
  International Joint Conference on Neural Networks (IJCNN), 2023
  Akshay Sethi, Sonia Gupta, Siddhartha Asthana

- Learning Representations for Bipartite Graphs using Self-Supervised Multi-Task Learning
  European Conference on Machine Learning (ECML-PKDD), 2023
  Akshay Sethi, Sonia Gupta, Siddhartha Asthana

- Relational Representation Learning for Dynamic Graphs: A Survey
  Journal of Machine Learning Research (JMLR), 2020
  Seyed Mehran Kazemi, Rishab Goel, **Akshay Sethi**, Pascal Poupart

- 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 Aralikatte, 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 Aralikatte, 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

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**

- System and Method for Universal Representation Learning in Bipartite Graphs
  Akshay Sethi, Sonia Gupta, Aakarsh Malhotra, Siddhartha Asthana

- System and Method for Learning Hierarchical Transformers in Limited Labelled Data
  Akshay Sethi, Sonia Gupta, Siddhartha Asthana

PRE-PRINTS

- Coverage Testing of Deep Learning Models using Dataset Characterization
  Under Submission to Foundations of Software Engineering Conference (FSE)
  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