PULKIT KUMAR

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Education

Name of Course	Year	Institute	CGPA
Bachelors in Engineering (Information Technology)	2017	Netaji Subhas Institute of Technology (NSIT), University of Delhi	8.26

Work Experience

Jun 2017- Present **Paralleldots, Inc.**
Junior Research Scientist
Experimenting with various Deep Learning architectures on medical imaging to automate diagnosis and deploying it in various medical setups.

Apr 2017- Present **Indraprastha Institute of Information Technology**
Research Assistant
Under Dr. Chetan Arora and Dr. Anubha Gupta, assisting PhD scholar Pravin Nayar in detection of cryptogenic epilepsy in brain MRI and detection of myeloma using Deep Learning.

Jun 2015- Apr 2017 **Paralleldots, Inc.**
Data Science Intern
Implemented various Machine learning and Deep Learning architectures on diverse projects involving text and images.

Research Projects and Publications

Jun 2017- Feb 2018 **U-Segnet: Fully convolutional neural network based automated brain tissue segmentation tool**
With P. Nagar, C. Arora and A. Gupta [**pdf**]
In submission
A hybrid of SegNet and U-Net architecture for segmentation of Grey Matter, White Matter and Cerebrospinal Fluid in brain MRI.

Sept 2017- Dec 2017 **Boosted Cascaded Convnets for Multi-label Classification of Thoracic Diseases in Chest Radiographs**
With M. Grewal, and M. M. Srivastava [**arXiv**]
In submission
Combining boosting and cascading with DenseNets to detect all the pathologies in he Chest X-Ray 8 dataset.

Jun 2017- Oct 2017 **RAD-net: Radiologist-level accuracy in Brain Haemorrhage Detection**
With M. Grewal, M. M. Srivastava, and S. Varadarajan [**arXiv**]
In International Symposium of Biomedical Imaging (ISBI), 2018
A Deep Learning model combining DenseNets with attention and LSTMs to detect haemorrhage from brain CT scans which matches the accuracy of senior radiologists.

Aug 2017- Oct 2017 **Anatomic Labelling of Brain CT Scans using Relation Networks**
With S. Varadarajan, , M. M. Srivastava, and M. Grewal [**arXiv**]
Poster in International Symposium of Biomedical Imaging (ISBI), 2018
Used multi-context feature embeddings from a pre-trained VGG model with nearest neighbours to train RelationNets for anatomic labelling in brain CT Scans.

Sept 2017- Ongoing **Multi-label Pathology Classification in Brain CT Scans**
Paralleldots, Inc.
Testing out different models and methodologies to detect various pathologies from brain CT scans.

Dec 2017- Ongoing **Detection of Tooth Caries from Bitewing Radiographs**
Paralleldots, Inc.
Experimenting with untraditional approaches to improve previous models in detecting dental caries.

Jan 2018- Ongoing **Segmentation and Prediction of Myeloma from Microscopic Images**
Indraprastha Institute of Information Technology
Experimenting with conditional Deep Convolutional Generative Adversarial Networks (DC-GANs to augment and segment suspicious cells and predicting if they are cancerous or not.

Jan 2017- May 2017 **Big Data Analysis Framework using Apache Spark and Deep Learning**
With A. Gupta, H. Thakur, R. Shrivastava and S. Nag [**arXiv**]
In Data Science and Big Data Analytics Workshop, ICDM 2017
A cascaded approach to predict the approval of H-1B visas on factors such as qualification, salary, location of job etc.

Jun 2016- Apr 2017 **Skin Lesion Analysis towards Melanoma Detection**
Paralleldots, Inc.
Training models with different architectures using Convolutional Neural Networks, Auto Encoders etc. to detect skin cancer (Melanoma) from dermoscopic images.

Jan 2016- Jun 2016 **Automated Analysis for Diagnosis in Cephalometric X-ray Image**
Paralleldots, Inc.
Used Statistical Shape Modelling and object detection techniques to develop an automated tool to assist orthodontists in performing Cephalometric Analysis.

Nov 2015- Dec 2015 **Machine Learning Classifier for App User's Intent**
Paralleldots, Inc.
Used distributed representation with XGBoost and Support Vector Machines to classify user reviews into categories relevant to the app developer.

Aug 2015- Sep 2015 **Machine Learning Classifier for News Headlines**
Paralleldots, Inc.
Used the Semantic Proximity API along with statistical methods to develop a tool to classify news headlines into its relevant category and sub-category.

Skills

- **Programming Languages:** Python, C++, C.
- **Frameworks and Tools:** NumPy, PyTorch, Lasagne, Theano, Pandas, Scikit-learn, Open-CV

Extra-Curricular

- Received college **scholarship** for two consecutive years for excelling in academics.
- **Director of Operations** for Colloquium'16 which is the annual Debating and Literary festival of NSIT.
- **Director of Operations (2015-16)** of the Debating Society of NSIT.
- Volunteer at **CanSupport - Caring for People with Cancer (NGO).**