# 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

**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.

**Apr 2017- Ongoing** **Brain Tissues Segmentation in MRI scans using Deep Learning**
*Indraprastha Institute of Information Technology*
Experimenting with modifications of SegNet and U-Net for segmentation of Grey Matter, White Matter and CSF in brain MRI.

**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

# Relevant Coursework

*Computer Vision, Neural Networks, Introduction to Algorithms, Data Structures, Advanced Calculus, Theory of Computation, Compiler Design, Computer Networks, Operating Systems.*

# 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).**