

Ashish Sinha

Education

2016–2020 **Indian Institute of Technology Roorkee,**
Metallurgical and Materials Engineering, Bachelor of Technology.
GPA – 8.13/10

Experience

- June 2019– **Research Intern**, PREFERRED NETWORKS, TOKYO.
- Aug 2019
 - Implemented a GAN for generation of CT scans from Biplanar DRRs.
 - Designed Guided Attention for improving the image generation quality.
 - Designed Vector Quantization(VQ) method for reducing the memory usage, keeping the image quality same.
- Aug 2018– **Data Scientist Intern**, RYELORE.AI.
- May 2019
 - Implemented various semantic segmentation models on satellite imagery.
 - Created tests and automation scripts.
 - Worked on expanding the solar farms in Asia-Pacific region by calculating the solar energy output of the farms.
- May 2018– **Data Science Intern**, ANTRIEX IT SERVICES.
- July 2018
 - Developed various Trading strategies involving Bollinger Bands and other technical trade indicators with the help of TA-Lib library.
 - Wrote a MLP CLASSIFIER to generate trade signals that increased the accuracy by 1.02%.
 - Implemented LSTM for stock price prediction.

Projects

- Mar 2019– **Medical Image Segmentation using Multi-Scale Guidede Attention Networks [Code]**, Prof. Jose Dolz, École de Technologie Supérieure, Canada.
- July 2019
 - Designed new attention module for Semantic Medical Image Segmentation.
 - Used the MRI dataset from CHAOS challenge for all experiemnts.
 - Paper in review at the Journal of Neural Networks[Clickable link]
- May 2018– **Metal Morphology Classification using Deep Learning**, Prof. K.S. Suresh, IIT Roorkee.
- Oct 2018
 - Collected Iron and Titanium metal microstructures images.
 - Used a VGG19 model for classification of images into respective classes of microstructure.
 - Used the weights from various Convolutional layers of VGG19 model for t-SNE plots.
- Aug 2018 **Neural Arithmetic Logic Units [Code]**, Self-motivated.
- Aug 2018– **MURA (musculoskeletal radiographs) X-Ray Classification [Code]**, Self-motivated.
- Oct 2018
 - Implemented the original paper to reproduce the results.
 - Optimized the hyperparameters to beat the baseline score.
 - Used pretrained models like DenseNet50, ResNet169 among others with attention for classification.
- Nov 2018 **Quora Insincere Question Classification**, Self-motivated.
- Nov 2018
 - Implemented a CNN-LSTM architecture with attention to detect toxic content in online media.
 - Achieved an F1-Score of 0.73 and ranked in the Top 13% on Kaggle LB.
- May 2018 **Simplifying Rough Sketches Using Deep Learning [Code]**, Self-motivated.
- May 2018
 - Implemented the paper *Learning to Simplify: Fully Convolutional Networks for Rough Sketch Cleanup* by Simo-Serra et. al in PyTorch.
 - Implemented an Encoder-Decoder architecture.

Achievements

- Apr 2019 **PetFinder.my Adoption Challenge**, *Kaggle*.
◦ Won a Bronze Medal and ranked in the TOP 9%.
◦ Used XGBoost as the base model, no ensemble.
- July 2018 **Humpback Whale Identification Challenge**, *Kaggle*.
◦ Ranked 64 among 528 teams(TOP 13%) in the Whale Identification Challenge.
◦ Used Transfer Learning with ResNet50.
- Oct 2018 **TGS Salt Identification Challenge**, *Kaggle*.
◦ Ranked 526 among 3234 teams(TOP 17%) in the task to segment salt deposits beneath Earth's surface.
◦ Used UNet with ResNet50 as encoder.
- Nov 2018 **Human Protein Atlas Image Classification**, *Kaggle*.
◦ Ranked in the TOP 17% in the multiclass multilabel protein classification challenge.
◦ Used ResNet50 as base model.
- Oct 2018 **Quick Draw! Doodle Recognition Challenge**, *Kaggle*.
◦ Ranked in the TOP 29% in the Doodle Recognition Challenge.
◦ Trained an ImageNet model from scratch, by constructing images from stokes.

Skills

Languages Python(A), C/C++(B), Java(B), SQL(B)
Frameworks PyTorch, Chainer, Keras, Tensorflow
WebD HTML/CSS, JavaScript, Jekyll
Utilities Anaconda, Git, Vim, VS Code, Jupyter Notebook
Communication English(SRW), Hindi(SRW), Japanese(Beginner)

Relevant Courses

Online Convolutional Neural Networks for Visual Recognition, Deep Learning for NLP, Deep Learning.Ai Specialization, Introduction to Machine Learning, Introduction to Statistics and Probability, Intro to Deep Reinforcement Learning

Classroom Linear Algebra, Differential Calculus, Differential Equations, Economics, Marketing Research, Environmental Economics

Extra Curriculars

- Apr 2018 **Vision and Language Group**, *Executive Member*.
The group aims to foster Deep Learning research among students by conducting discussions and implementations on various Research Papers in the field of Computer Vision and NLP. I implemented a paper on DC-GAN and Neural Style Transfer.
- Oct 2017 **Enactus IIT Roorkee Chapter**, *Executive Member*.
The Campus group works towards Socail Entrepreneurship. I was a part of the Kaagaz Project.
- Jan 2018 **Academic Reinforcement Program**, *Teaching Assistant*.
Taught General Chemistry(CYN-006) to a batch of 86 students.
- Jul 2018 **Academic Reinforcement Program**, *Teaching Assistant*.
Taught Intro to Computer Programming in C++(MTN-103) to a batch of 80 students.
- Feb 2018 **Sangram IIT Roorkee**, *Web Developer*.
Developed the website for Sangram, IIT Roorkee, the official annual Sports fest of IIT Roorkee.
- Dec 2015 **Quizense**, *Founder*.
Started a start-up along with 3 others that aimed to conduct Quizzes for various schools and fests.

Publications

1. **Multi-scale Guided Attention Networks for Medical Image Segmentation**,
A.Sinha, J. Dolz, Journal of Neural Networks, 2019.

Interests

- Cycling
- Quizzing
- Reading
- Hiking
- Gaming
- Sketching

References

Yohei Sugawara,
Research Engineer,
Preferred Networks, Japan,
suga@preferred.jp.

Jose Dolz,
Assistant Professor,
Department of Software and IT Engineering,
ETS Montréal.
jose.dolz@etsmtl.ca

K.S Suresh,
Assistant Professor,
Metallurgical and Materials Engg., IIT Roorkee,
suresfmt@iitr.ac.in.

Yuichiro Hirano,
Research Engineer,
Preferred Networks, Japan,
hirano@preferred.jp.

Anu Chandra,
CEO,
Ryelore AI,
London, UK.
anu@ryelore.com