Sai Himal Allu

github/wannabeog

Email : sallu@ec.iitr.ac.in

Mobile : +86-13061817690/+91-7456995417

EDUCATION

o **Indian Institute of Technology, Roorkee** — Roorkee, India
Bachelor of Technology in Electronics and Communication Engineering; GPA: 8.42/10.0) — *July.2016 - Present*

RESEARCH EXPERIENCE

o **Undergraduate thesis** — Shanghai, China
Supervised by Dr Lu Hongtao and Dr Debasis Ghosh — *August 2019 - Present*

- ○ Undergraduate thesis; partly being carried out at Shanghai Jiaotong University
- ○ Studying the problem of continual learning in neural networks and the problem of catastrophic interference
- ○ Specifically interested in a setting where the information signal from the task boundaries is not made available to the model beforehand

o **Research Project** — Roorkee, India
Dr Partha Pratim Roy — *September 2018 - December 2018*

- ○ Worked on the problem of text detection from images especially text inclined at an angle
- ○ Experimented with an approach which could learn a more general quadrilateral shape instead of a regular rectangular bounding box by introducing parameters to offset the co-ordinates of a rectangular bounding box
- ○ Designed experiments to test this idea against the present state of the art approaches in text detection

o **Research Project** — Roorkee, India
Dr Biplab Banerjee — *December 2017 - February 2018*

- ○ Designed and conducted experiments on various architectures that were based on the idea of Siamese neural networks
- ○ Conducted an extensive literature survey over the problem of stereo vision

INTERNSHIPS

o **BCMI Lab, SJTU** — Shanghai, China
Supervised by Dr Lu Hongtao — *May 2018 - July 2018*

- ○ Studied the literature on the then state of the art object detection networks
- ○ Performed a comparative study on two-stage and one-stage object detectors to determine the advantages and disadvantages of each approach
- ○ Put together an implementation of Mask R-CNN to gain a better understanding of some of the ideas introduced in that particular paper

o **American Express** — Bengaluru, India
Machine Learing Engineer — *May 2019 - July 2019*

- ○ Involved in the development of architectures based on CNN's as an alternative to the RNN based architectures; effort to achieve better performances in terms of time and speed
- ○ Implemented a CNN model using the principles established in Neural Ordinary Differential Equations; established the initial benchmarks for this model to motivate further internal research
- ○ Proposed a change in the data preparation strategy which led to a significant increase over the previously established in-house benchmarks

PROJECTS

- **ExpertNet-PyTorch**
  [link]
  - ◦ Implemented and open-sourced the ideas presented in the CVPR 2017 paper "Expert-gate: Lifelong learning with a network of experts"
  - ◦ Designed and conducted experiments to enable testing these ideas on a lower scale (in terms of the size of the datasets used and computational resources required)

- **MaS-PyTorch**
  [link]
  - ◦ Implemented and open-sourced the ideas presented in the ECCV 2018 paper "Memory Aware Synapses: Learning what (not) to forget)"
  - ◦ Minimized the redundancies present in the author's implementation

- **Mask RCNN**
  [link]
  - ◦ Worked on developing an open sourced version of Mask R-CNN built using PyTorch
  - ◦ Was a part of GitHub Trending when released to the public

- **PredictX: Open Health Hackathon**
  [link]
  - ◦ A recommender system that the team built which predicted colleges (among a limited number of options) and grades using the datasets of the students from Kaggle
  - ◦ Trained model gave a commendable accuracy of 77.6 % on the predictions made. Model was also substantially resistant to outliers

- **Course Project: Computer Architecture**
  [link]
  - ◦ Developed an implementation of a 24 bit RISC processor in Verilog
  - ◦ Used a self developed Instruction Set Architecture
  - ◦ Optimized performance by implementing necessary pipelining protocols

- **Course Project: Digital Image Processing**
  [link] [report] [slides]
  - ◦ Implemented and open sourced the ideas presented in the paper "When sparsity meets low-rankness: Transform learning with non-local low-rank constraint for image restoration" in Python
  - ◦ Developed an experimental procedure to prove the solution of the optimization equation proposed and used by the authors

- **Optical Character Recognition for the submission of forms**
  [link]
  - ◦ Part of a team responsible for the development of a module that could recognize the package number (delivery services) using convolutional neural networks

- **Steps: Smart India Hackathon**
  [link]
  - ◦ Developed a chatbot for a proposed platform for startups and investors to enable direct communication regarding funding between the interested parties

RELEVANT COURSES (INCLUDING ONLINE)

- ◦ **CS231N**: CNNs for Visual Recognition; Stanford course by Dr Andrej Karpathy
- ◦ **Reinforcement Learning**: UCL course by Dr Dave Silver
- ◦ **deeplearning.ai**: Coursera courses by Dr Andrew Ng
- ◦ **Digital Image Processing**: Part of coursework at IIT Roorkee
- ◦ **Linear Algebra**: Part of coursework at IIT Roorkee

ACHIEVEMENTS

- **ComedK 2016**: Ranked 3 among a pool of more than ten thousand applicants for the examination
- **JEE Advanced 2016**: Ranked 1247 among a pool of hundred thousand applicants for the examination
- **Smart India Hackathon**: The team made it to the final round alongside 250 other teams selected nation-wide

PROGRAMMING SKILLS

- **Languages**:Python, C++, Verilog   **Technologies**: PyTorch, Keras, Tensorflow, Git, Linux