Akansh Maurya

akanshmaurya@gmail.com
Lucknow, Uttar Pradesh, India
Phone: +91 8433151551
Github Linkedin

Objective

My research interest lies in the field of machine learning, signal processing, and control systems. In previous centuries, scientists like Fourier were able to solve many complex mathematical problems like heat equation by formulating them, but still there exist a vast number of unformulated problems that we encounter remaining unsolved. I believe that data analysis is the key, in fact, I call data analysis the new alchemy.

Education

Institute Of Engineering And Technology, Lucknow
Bachelors of Technology, Electrical Engineering **CGPA: 8.6**, **GRE Score: 315(166Q/149V)** Expected: June 2021

- The subject of Interest: Signal & System, Control System, Optimization.
- **Minor projects:** Comparison of neural network vs traditional based PID tuning techniques, Nature-inspired optimization algorithm. (ProjectLink)

Delhi Public School, Vidyut Nagar
Intermediate: 91.6 % and High school: 10 CGPA Completed: May 2017

- Gold Medalist and Scholar Badge Holder

Previous Internships

1. Research Intern: SPIRE Lab, IISC Bengaluru Oct,20- April, 21

- I am currently doing a research internship at SPIRE lab, IISC Bengaluru, under the guidance of Dr. Prashanta Kumar Ghosh. The project is to build a smartphone app that can help the detection of an asthmatic patient based on cough sound. We are using the signal processing and Machine Learning approach for the same.

2. Deep Learning Intern: ERTS Lab, IIT Bombay May-July, 20

- ERTS lab spends a significant amount of time validating ID cards uploaded by eYRC, eYIC, and MOOCs participants, We developed a deep learning-based web app that can automate the process of verifying and validating ID cards. Implemented a ResNet-50 architecture based classification algorithm, for verifying college ID cards.
- Developed a RotateNet model that can automatically rotate Images to correct orientation for improving OCR results on rotated images. Implemented real-time Text Detection with Differentiable Binarization (DBNet) with 27 fps and Convolutional Recurrent Neural Network (CRNN), a combination of CNN, RNN, and CTC loss for image-based sequence (text) recognition.
- Coded custom fuzzy string matching algorithm for validation of Text present in the ID card.

3. Machine Learning Intern: Astute Resolutions, Lucknow May-July, 19

- Making Lucknow (India) a Smart City, collecting custom data from surveillance cameras, to identify non-helmet motorcycle riders and subsequently detecting number plates to penalize. Learned and got introduced to industrial use of computer vision, Machine Learning algorithm.

Projects *[Project Link and other projects]*

1. Verification and Validation of ID cards, as Intern at IITB May-July-20
The aim of this project was to verify and validate college ID cards uploaded by students for participating in various competitions and online courses. In this project we used CNN based classification model to validate ID cards from a pool of images, then we used RotateNet to correct the orientation of Image for performing OCR. We developed a custom string matching algorithm for verifying details. This project can be accessed both via web API and Restful API.
2. Survey and Rescue Drone, Funded by MHRD and e-yantra lab. Oct,19-Feb,20
Aimed to mimic the situation of a flood, and using drones to provide essentials like food, medicine, and Rescue operations. through this project I learned about the implementation of PID Algorithm, Robot Operating System (ROS), and Image processing for detecting beacons (Edge, contour, Whycon Marker detector), path planning Algorithm and drone work.
3. Genetic-Algorithm for Power System Optimization, Guided by Dr. Nitin A Shrivastava Oct-Nov, 19
In this project I coded GA, using MATLAB. I have solved the question from a famous Optimization book, Deb Kalyanmoy - Optimization for Engineering Design.

Publications and Accomplishments

- Paper Title: "*A system for verifying non-standard personal identity documents using state-of-the-art deep learning models. " (Under review)*
- Finalist in eYRC 2019-20, national level robotics competition, we secured 5th position in 30k participants.
- Amir Fatima Undergraduate Scholarship Award 2018, A scholarship awarded by an alumnus of IET Lucknow for student welfare and Technical advancement.

Certification

- Deep Learning Specialization by Deeplearning.ai
- Audio Signal Processing for Music Applications (Course ongoing)
- Machine Learning by Stanford University, taught by Andrew Ng
- Control Engineering by NPTEL, IIT Madras
- Generative Adversarial Networks(GANs)
- Introduction to the Internet of things and Embedded System

TECHNICAL SKILLS AND EXPERTISE

- Programming Language: C, Python, MATLAB.
- Python Libraries: Pytorch, TensorFlow, OpenCV, Robot operating System, Numpy, Matplotlib, Pandas.
- Skills: Computer vision, Deep Learning, Control System, Signal, and Systems.