PRAVAN OMPRAKASH

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EDUCATION

National Institute of Technology, Karnataka July 2018 - Present

- BTech. Major in Metallurgical and Materials Engineering, CGPA: 8.47/10
- BTech. Minor in Electronics and Communications Engineering, CGPA: 8.35/10

WORK EXPERIENCE

Zeos Global December 2020 - Present
Intern *Hyderabad, India*

- Zeos Global designs, manufactures and markets state-of-the-art, high-end consumer electronics products and accessories, with initial focus in the mobile space.

Spell Genie June 2020 - December 2020
App Development Intern *Bangalore, India*

- I helped in building a Flutter App using Firestore and Firebase, for children to learn spellings and improve their vocabulary, grammar and grasp of the English language.

Centre for System Design January 2020 - May 2020
Research Assistant *NITK, Surathkal*

- I assisted in building a model for real-time person recognition through body movement patterns using Convolutional Neural Networks (CNN) and a Siamese network. The CNN consists of a pre-trained model for face detection and recognition. Code can be found here.

Alternate Energy and Nanotechnology Lab December 2019 - January 2020
Research Intern *IIT- Madras, India*

- Supervisor: Dr. S. Ramaprabhu, Department of physics IIT-Madras.
- I learnt and worked on viable methods of chemical synthesis of Graphene and Carbon nanotubes.
- Thoroughly studied nanomaterial based energy generators used to capture mechanical vibrations and convert them to electrical energy. A short write-up of my experience.

PUBLICATIONS

AuthNet:A Deep Learning based Authentication Mechanism using Temporal Facial Feature Movements
35th Conference on Association for Advancement of Artificial Intelligence, Student Abstract and Poster Program (AAAI-21) *February 2021*

- Summary: Built a robust Deep learning model that consists of an Long Short Term Memory(LSTM) network and a pre-trained VGGNet model to capture temporal facial feature movements while a user is uttering a password. Code can be found here and the longer version of the paper can be found on Arxiv.
- It was built using the publicly available MIRACL-VC1 dataset with an accuracy of 98.1%.

Carbon and metallic-based nanomaterials for strain sensors- a review
Current Nanomaterials, Bentham Science *January 2021*

- Summary: A comprehensive review on new developments in carbon nanomaterials as well as metallic nanoparticles based strain sensors.
- Paper was written under Dr Devadas Bhat P, Department of Metallurgy and Materials Engineering, NITK Surathkal.

PROJECTS

RainCheck August 2019 - Present

6th best idea in India and 33rd in the world for the Redbull Basement Challenge 2020.

- Built an LSTM model trained on weather data so as to predict rainfall using only data collected from sensors for local premises. Attained an accuracy of 85 % in predicting rainfall on Australian weather dataset.
- Project under Prof. Ayon Chakroborty, department of CSE, IIT-Madras. Idea Presentation and Code can be found here.

A review of 2D Perovskites and Carbon-based nanomaterials for applications in solar cells and optoelectronic devices October 2020 - Present

- Currently writing a review paper on developments and possibilities for nanomaterials in increasing efficiency of photovoltaic cells and optoelectronics devices.
- Paper being written under Dr Devadas Bhat P, Department of Metallurgy and Materials Engineering, NITK Surathkal.

Predicting properties of new perovskite materials for solar cells August 2020 - Present

- Assimilating a database of perovksite compounds and using artificial neural networks to predict properties of these compounds so as to facilitate ease of development of better perovskite based solar cells.
- This project is under Dr Devadas Bhat P, Department of Metallurgy and Materials Engineering, NITK Surathkal.

Multi Agent Reinforcement Learning with Dynamic Graphs August 2020 - Present

- Designing Multi-Agent reinforcement learning (MARL) with a decentralised reward system using temporal graph networks.
- Employing state of the art graph neural network architectures to solve real world applications using MARL.

Predicting corrosion characteristics using AI May 2020 - November 2020

- Developing a CNN model to predict important corrosion characteristics from Scanning Electron Microscope images of specimens. Code can be found here.
- Worked under Prof. Shashibhushan Arya, Department of Metallurgical and Materials Engineering, NITK Surathkal.

Intuitive Personal Assistant March 2020 - June 2020

- Helped in designing the frontend of the app built using flutter.
- Built APIs for various services on the app that are required for a personal assistant like web scraping, object detection, text detection, news retrieval etc. using NLP, Computer Vision and Machine Learning Techniques. Code can be found here.

Mortgage approval using Machine Learning February 2020 - April 2020

- A Machine learning model to improve loan approval systems.
- Used Xgboost algorithm to predict approval of mortgages on a real world dataset and obtained an accuracy of 80%. Code can be found here.

TECHNICAL SKILLS

Languages	Python, C++, C, JS, Dart, Arduino programming language, LaTex
Software and frameworks	Keras, Tensorflow, Flutter, Pytorch, Git/Github, React Selenium, Arduino

CERTIFICATIONS AND COURSES

Optimization Techniques, Electronic Properties of materials, Polymer Technology, Phase Diagrams, X-Ray Diffraction and Electron Microscopy, Analog Systems, Digital Electronics, Signals and Systems, Deep Learning Specialization by Andrew Ng,

EXTRA-CURRICULAR

Fresher Activities' Coordinator May 2020 - April 2021
ACM NITK Student Chapter *150 members*

· Organize knowledge exchange programs, mentor technical projects for freshers in NITK.

Executive Member August 2019 - Present
Web Enthusiasts' Club, NITK *100 members*

· Help in organizing college wide computer science related events like hackathons, talks etc.

Journalist May 2020 - Present
Pulse, NITK *30 members*

· Have written around 10 articles for the college student media body so far.

Volunteer July 2020 - Present
S.P.A.R.K *400+ members*

· Helped in organizing a charity drive for procuring essentials for orphans during the COVID pandemic.