

# PRAVAN OMPRAKASH

pravanop@gmail.com ◇ github.com/Pravanop

## EDUCATION

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### National Institute of Technology, Karnataka

July 2018 - Present

- BTech. Major in Metallurgical and Materials Engineering, CGPA: 8.48/10
- BTech. Minor in Electronics and Communications Engineering, CGPA: 8.35/10

## WORK EXPERIENCE

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### 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

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### 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*

- Selected as a finalist for oral presentation.
- 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*

- 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. The paper can be found [here](#).

### A review of 2D Perovskites and Carbon-based nanomaterials for applications in solar cells and photodetectors

*Journal of Solid State Science*

*Electrochemical society, IOPScience*

*March 2021*

- a review paper on developments and possibilities for nanomaterials in increasing efficiency of photovoltaic cells and optoelectronics devices.

- Paper written under [Dr Devadas Bhat P](#), Department of Metallurgy and Materials Engineering, NITK Surathkal.

## PROJECTS

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### **Extensions and timestep prediction in Temporal Graph Networks** August 2020 - Present

- Adding key features on Temporal Graph Neural Network Architecture.
- Applying them in knowledge graphs

### **A Machine Learning based bandgap predictor for varied perovskite crystals** August 2020 - March 2021

- Paper under review in the computational materials science journal, Elsevier publications.
- Assimilating a database of perovskite compounds and using graph neural networks to predict properties of these compounds and also build an user-friendly pipeline 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.

### **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](#).

### **Predicting corrosion characteristics using AI** May 2020 - November 2020

- Developed 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

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|--------------------------------|---|
| <b>Languages</b>               | Python, C++, C, JS, Dart, Arduino programming language, LaTeX               |
| <b>Software and frameworks</b> | Keras, Tensorflow, Flutter, Pytorch, Git/Github, React<br>Selenium, Arduino |

## CERTIFICATIONS AND COURSES

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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

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### **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.