

# SUMUKH AITHAL K

Bengaluru, India  
sumukhaithal6@gmail.com

## EDUCATION

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**PES University, Bengaluru**  
Bachelor of Technology  
Department of Computer Science

*August 2018 - Present*

CGPA : 9.82/10

**Bishop Cotton Boys' School**  
Indian School Certificate Examination : Grade 12

*June 2016 - June 2018*  
Overall Percentage: 96.5

## WORK EXPERIENCE

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**Video Analytics Lab, Indian Institute of Science**  
*Research Intern*

May 2020 - Present  
*Bengaluru, India*

- Working on a research project on Active Domain Adaptation under Prof. Venkatesh Babu. Developed a novel active learning strategy to select the most informative samples from the unlabeled target set for domain adaptation.

**Microsoft Innovation Lab, PES University**  
*Project Intern*

June 2019 - July 2019  
*Bengaluru, India*

- Developed a Customer Feedback Analysis Model to analyze the customer review data of a company, and help identify critical issues based on their severity and impact on customers as well as management. Performed Aspect Based Sentiment Analysis on the reviews to categorize the reviews and understand the sentiment of the customer.

## TECHNICAL SKILLS

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**Machine Learning**  
**Programming Languages & Tools**

PyTorch, Keras, Tensorflow, OpenCV  
Python, C, C++

## PUBLICATIONS

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**Robustness to Augmentations as a Generalization metric** [\[Paper\]](#) [\[Video\]](#) [\[Code\]](#)

**Sumukh Aithal K\***, Dhruva Kashyap\*, Natarajan Subramanyam

**1st Runner Up in Predicting Generalization in Deep Learning, NeurIPS 2020 Competition Track**

In this work, we developed a simple yet effective method to predict the generalization performance of a model by using the concept that models that are robust to augmentations are more generalizable than those which are not.

**Domain Shift in Capsule Networks** [\[Paper\]](#)

Rajath S\*, **Sumukh Aithal K\***, Natarajan Subramanyam

*In Proceedings of the 10th International Conference on Pattern Recognition Applications and Methods - Volume 1: ICPRAM, ISBN 978-989-758-486-2, pages 275-278.*

In this paper, we analyze how well capsule networks adapt to new domains by experimenting with multiple routing algorithms and comparing it with CNNs.

**Transfer Learning Using Neural Ordinary Differential Equations** [\[Paper\]](#)

Rajath S, **Sumukh Aithal K**, Natarajan Subramanyam

A concept of using Neural Ordinary Differential Equation for Transfer Learning has been introduced. It has been shown that the proposed method shows stability during training in transfer learning tasks.

## PROJECTS

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### **Low Light Object Detection**

#### **Intel Advanced Driver Assistance Systems Project**

Performed Semantic Segmentation on the Indian Driving Dataset using custom trained DeepLabV3+ network. Worked on low light enhancement techniques to improve the model's accuracy.

**Awarded Best Completed Submission winner in the Intel - PESU Student Contest.**

### **Kaggle's ALASKA2 Image Steganalysis**

Developed a Custom EfficientNet model to detect hidden data within images. Won a Silver medal for being the Top 3% of all teams. Currently a **Kaggle Competitions Expert** [\[link\]](#) .

## ACHIEVEMENTS

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### **Finalist at the India Police Hackathon conducted by Karnataka Police**

Designed an Open Source Intelligence tool for the Karnataka police to get the Online Presence Matrix of an individual who may be a suspect, criminal or foreign agent. Face recognition was also used for reverse image search of the person.

### **Finalist at Bounce Hack 1.0**

Developed a ride sharing platform for users who travel on the same route to help them reduce costs and time.

### **Finalist at Pravega IBM Hackathon at IISc Bengaluru**

Designed a model for classification of Fake News using Recurrent Neural Networks.

### **Finalist in RAKATHON 2.0 conducted by Rakuten India**

Developed a solution for parking problems in India using computer vision techniques to detect the entry and the exit of cars.

**Prof.CNR Rao Merit Scholarship and MRD Scholarship at PES University for securing 10 SGPA (2019)**

## EXTRA-CURRICULAR

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Participated in the Japan-Asia Youth Exchange program in Science (2017) - Sakura Science Plan (Administered by Japan Science and Technology) in Saitama University, Japan.

Best Senior Prefect Award on Graduation Day at Bishop Cotton Boys School.

Science Secretary at Bishop Cotton Boys School.