Raj Aaryaman Patra

Personal Data

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Education

2018-Present	B.Tech. Degree in Electrical Engineering **National Institute of Technology**, Rourkela Advisor: Prof.Arnab Ghosh	CGPA: 7.73/10.0
May 2018	Intermediate in Science and Maths CBSE: **DAV Public School**, Chandrasekharpur Percentage: 87%
May 2016	Matriculation CBSE: **Vikash Residential School**, Bargarh CGPA: 10.0/10.0

Skills

General Programming:	C, C++, Python, Embedded C
Libraries and Frameworks:	Pytorch, Open CV,Sklearn,Scipy,Numpy,Spacy,NLTK,Librosa
Softwares:	Eagle,Multisim,ROS,proteus,Google Colab,Latex
Proficient Skills	Deep Learning, Machine Learning,Data Science,Computer Vision, NLP,Data stucture,ALgorithms,Audio Processing
Intermediate Skills:	Web Scrapping,Embedded Systems

Achievements

Dec 2020.	Finished among top 5 finalists in SYNERGE hackathon, organised by General Electric.
Sep 2020	Finalist in GRID 2.0 hackathon, organised by Flipkart.
Aug 2020	Finalist in IBM Hack Challenge , organised by IBM.
Jan 2020	2nd Runners up in NEXUS , an computer vision, event organised by IIT Kharagpur.
July 2019	Stood 5th in NTPC electron regional level quiz competition among 230 participants.

Research Projects

November 2020	**Keyword Generation and Spotting** Supervisor:Prof.Suman Samui Developed a WAVEGAN based audio generation model to increase diversity in dataset which was in turn used for efficient keyword spotting which was done using a classification based approach using Resnet Backbone.
October 2020	**Data Generation for Imbalanced class** Research Project Worked on different generative models including Variational Auto Encoders, and wasserstein GANs to generate valid and relevant data required for a classification task dealing with heavily imbalanced classes.
May 2020	**Classification of limb movement** Supervisor:Prof.Suman Samui Classification models like SGD and SVM and decision tree are used to classify EMG signals from arm for pose prediction which would help in the field of applied prosthetic that would help the physically challenged, currently we are making efforts to apply neural networks to generate more efficient features for classification.

APRIL 2020	**DISPARTING ALGORITHM TO IMPROVE SEGMENTATION**
	CYBORG, NIT ROURKELA
	A new algorithm was developed by me and my team ,that used clustering methods to radically improve the instance and semantic segmentation result of any deep learning Neural Network. Link for the article- https://medium.com/@cyborg.team.nitr/disparting44fac6dcf20b .
FEBRUARY 2020	**FACE RECOGNITION**
	SUPERVISOR:PROF.DEEPTI PATRA
	I used Facenet Model to implement the face recognition and implemented GANs for super resolution for better face recognition from blurred and unclear images.

PRODUCT-BASED PROJECTS

DECEMBER 2020	**TRANSFORMER BASED TIME-SERIES MODEL**
	SYNERGE HACKATHON
	Developed a Transformer and Self-Attention based time series model to generate future trends on demands of the different types medical in different region, this model was trained on data collected from self-made web scrapper that collected data from tender websites.
JUNE 2020	**RESUME PARSER**
	Intern at AI, CENTRE OF EXCELLENCE
	Developed an efficient resume parser to automate the process of resume shortlisting, it was done following NER methodology using different NLP and machine learning techniques for this,as my internship project.
DECEMBER 2019	**OBSTACLE AND LANE DETECTION**
	INTELLIGENT GROUND VEHICLE
	Used sliding window based computer vision techniques to detect and track lane and used Mask RCNN inspired pipeline to detect obstacles which was used in an autonomous vehicle that is going to compete in International Ground vehicle challenge , hosted by university of Ohio, USA.

EXTRA CURRICULAR ACTIVITIES

2018 - NOW	*HEAD OF VISUAL STACK, TEAM IGV,* CYBORG NITR
	I am a core member of cyborg currently leading the visual stack department of the team IGV(INTELLIGENT GROUND VEHICLE)
2018 - NOW	*Treasurer,* INQUIZZITIVE, THE OFFICIAL QUIZZING CLUB
	I am a hobbyist as well as a active quizzer, hence now along with quizzing I am the treasurer of the prestigious club managing all its financial affairs.
2019	*Event Coordinator,* INNOVISON (TECHFEST) 2019
	I had Manged and Organized the Line Following Autonomous Vehicle Event with over 200 participants during the tech fest. Innovision
2018 - 19	*Member* ECELL, NIT ROURKELA
	I was actively involved in the club's activities in the freshman year.

INTERESTS AND ACTIVITIES

Technology, Open-Source, Programming and Robotics
Quizzing ,Bibliophile and Travelling
Made an image stitcher to generate panaromic images after removing fish eye distortions from cctv cameras.