Soumya Ranjan Dash

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Education

2017–Present	**Indian Institute of Technology Kanpur**, *Electrical Engineering*, Bachelor of Technology. GPA – 9.45/10
2017	**Mothers Public School, Bhubaneswar**, *CBSE (Class XII)*. Percentage – 96.6/100
2015	**Kendriya Vidyalaya No.1, Bhubaneswar**, *CBSE (Class X)*. GPA – 10/10

Scholastic Achievements

2017	**All India Rank 987 in JEE Advanced**.
2017	**All India Rank 1602 in JEE Mains**.
2017– 18	**Academic Excellence Award at IIT Kanpur for the year 2017 and 2018**.
2016	**KVPY 2016 fellowship award with All India Rank 340**.

Projects

Jan 2020– Ongoing — **Common Sense Validation and Explanation**, *Prof. Ashutosh Modi, CSE, IIT Kanpur*.
- Developing a model which can predict the common sensibly valid sentence among a pair of common sense contrasting sentences and generate an explanation for the invalid sentence
- Working on state of the art language models like BERT and GPT-2 to develop the model

Nov 2019– Ongoing — **Sanskrit Speech to Text Transcription**, *Prof. Arnab Bhattacharya, CSE, IIT Kanpur*.
- Working on a language model that can be used for automatic speech recognition in the sanskrit language
- Implemented Bi-LSTMs based language model for end to end sanskrit speech transcription

Nov 2019– Dec 2019 — **Multiple Auscultatory Anomaly Detector**, *Inter IIT Techmeet 8.0*.
- Worked in a team of ten, to create a non-invasive device to screen various pulmonary diseases
- Developed a convolution neural network based model to use the auscultatory sounds for classifying diseases
- Won Silver medal among around 20 teams participating across all IITs

Nov 2019– Dec 2019 — **Bosch's Route Optimization Algorithm**, *Inter IIT Techmeet 8.0*.
- Developed an algorithm that can create routing plan for multiple vehicles to escort passengers in an area
- Implemented a web application for the visualization of working algorithm using here maps api
- Won Gold medal among around 20 teams participating across all IITs

Sep 2018– Ongoing — **Team ERA, IIT Kanpur**, *Prof. Laxmidhar Behera, EE, IIT Kanpur*.
- Built an AI powered bot that localizes itself in an arena, plan its motion and shoot enemy bots' armor
- Working on localisation of enemy robot using overhead surveillance in a partially informative map
- Developing decision game strategies for autonomous functioning of robot in the game arena
- Worked on Reinforcement Learning, Behavior tree and path planning algorithms
- Bagged third prize in ICRA DJI Robomaster AI Challenge held at Montreal, Canada

May 2018– Jul 2018 — **Desktopography**, *Electronics Club, IIT Kanpur*.
- Developed a computer vision based software framework to convert a desk into an augmented reality work-space with touch gestures. Implemented fingertips detection and tracking
- Won Overall Best Summer Project Award under SnT Council, IIT Kanpur among over 40 projects

May 2018– Jul 2018 — **Summer of Code, IIT Kanpur**, *Prof. Sandeep Shukla, CSE, IIT Kanpur*.
- Developed a Web App in a team of six for 3rd Party Services, and deployed it to Microsoft Azure
- Maintained a personal account of user with record of past queries using PHP and SQL

Course Projects

Fall 2019 — **Automatic Captcha Recognition**, *Introduction to Machine Learning*, CS771.
- Built a model using CNN that can exactly identify the captcha code given a dataset containing images

Fall 2019	**Monophonic Audio Classification**, *Machine learning for Signal processing*, EE698.
	○ Implemented Non-negative Matrix Factorisation and Probabilistic Latent Component Analysis to build models to classify four different classes of audio
Fall 2019	**Recommender System**, *Introduction to Machine Learning*, CS771.
	○ Using Decision tree, implemented a model that can recommend a set of products to a user
	○ Handled large sparse data for training models and reduced prediction time and model size significantly
Fall 2019	**Optimization Techniques**, *Introduction to Machine Learning*, CS771.
	○ Implemented various optimization algorithms and built a framework for the application of the algorithms on various datasets and different problems

Competitions

Jan 2019– Mar 2019	**Flipkart GRiD (teach the machines)**, *Flipkart, India*. ○ Designed an object prediction and labeling system using state of the art R-CNN model architecture ○ The team qualified Phase 3 with an accuracy of 91.2
Dec 2018	**Microsoft AI Challenge India**, *Microsoft, India*. ○ Developed an efficient model for query to passage ranking model, and qualified for final stage ○ Designed a TF*IDF score based BM25 model and implemented a deep neural network for ranking
Nov 2018	**Rust Hackathon**, *Programming club, IIT Kanpur and Tower Research, India*. ○ Worked in a team of three to build an SCP/CP cloning in rust with the program being able to copy files and folders across local & remote destinations and created options for preserving file permissions ○ Achieved first rank among all teams at IIT Kanpur

Skills

Languages	Python, C++, C, Rust*, HTML/CSS, JavaScript, SQL, flask
Utilities	Keras, PyTorch, Tensorflow, Scikit-learn, Librosa, Git, VSCode, Jupyter Notebook
	*Exposure

Relevant Courses

Online	Deep learning specialisation by Andrew Ng
Classroom	Special topics in Natural language processing*, Machine learning for signal processing, Introduction to machine learning, Digital signal processing*, Probability and statistics, Data structures and algorithms, Signal, systems and networks, Linear algebra
	*Ongoing

Positions of Responsibility

Sept 2019– Present	**ERA IIT Kanpur**, *Team Head*. ○ Leading a team of 13 students to prepare for the competition ICRA AI Challenge ○ Responsible for allocation and management of an annual budget of 14L to the team ○ Responsible for technical and business progress of the team
Mar 2019– Present	**Electronics Club IIT Kanpur**, *Coordinator*. ○ Responsible for allocation and management of an annual budget of 2L to Electronics Club ○ Mentored 47 students in Summer 2019 projects ○ Club Achieved Best Research, Best Innovation, Best Implementation and Best Club project Award ○ Mentored 2 summer projects : Swarm Robotics : Implemented shape formation with 4 bots and an overhead camera Smart Gamer : Successfully developed Game AI using reinforcement learning and behavior tree
May 2019– June 2019	**Electronics & ICT Academy**, *Teaching Assistant*. Worked as teaching assistant of IOT course in the summer training program by E&ICT, IIT Kanpur
Jul 2018– Present	**Counselling Service IIT Kanpur**, *Student Guide*. Guiding a group of six first year undergraduates from different majors in their academics and campus life