TUSHAR SAINI

+91 6230027646 ⋄ tushar.saini1285@gmail.com

OBJECTIVE

I am looking for a Ph.D. position where I can work on an overlapping problem between Environment and Computational Engineering. During my MS (by research), I was fascinated by how much I enjoyed working on a research problem. My long-term goal is to understand the impact of anthropogenic emissions on environmentally sensitive areas like the Himalayas. My experience in research has enabled me to think critically and formulate plans for open-ended problems.

EDUCATION

MS in Computer Science Aug' 2019 - Jan' 2022
Thesis Title: Modelling Air Quality via Machine Learning and IoT Technologies
Thesis Supervision: Dr Varun Dutt
Indian Institute of Technology, Mandi. CGPA : 8.7/10

Bachelors in Computer Science Engineering Aug' 2013 - July' 2017
Guru Gobind Singh Indraprastha Unversity, Delhi, 71.99%

RESEARCH EXPERIENCE

Project Associate, Indian Institute of Technology July 2019 - Apr 2021
Funded by Department of Environment Science and Technology

- Research and developed a Low-cost Air-pollution Sensing and Warning technology, which could be deployed at hilly terrains of Himalayas for 24x7 monitoring of air-pollution.
- Developed short- and long-term machine learning and state-of-the-art deep learning forecasting model which can forecast pollution concentration ahead in time.
- Evaluated public perception of people residing at polluted location in India and their eagerness to adopt technology to mitigate the impact of air pollution.

Research Intern April 2019 - June 2019
CSIR-Central Road Research Institute

- Worked briefly on formulating a CNN based machine learning model to identify vehicular traffic on road via CCTV footage.
- Evaluated vehicular traffic at urban city of Ghaziabad, U.P., India, to devise a modification plan of road intersection to smooth out long traffic jams.

PUBLICATIONS

Peer-Reviewed Journal Articles

Saini, T., Chaturvedi, P., Dutt, V. (2021). Modelling particulate matter using multivariate and multistep recurrent neural networks. Frontiers in Environmental Science, 614.

Conference Proceedings

Saini, T., Tomar, G., Rana, D., Chand, Attri, S., Dutt, V. (2021). A weighted ensemble approach to real-time prediction of suspended particulate matter. In Communications in Computer and Information Science: Proceedings of the 10th International Advanced Computing Conference (IACC), Panaji, Goa. Springer.

Sharma, R., Saini, T., Kumar, P., Pathania, A., Chitineni, K., Chaturvedi, P., Dutt, V.. An Online Low-Cost System for Air Quality Monitoring, Prediction, and Warning. In Lecture Notes in Computer Science. Springer.

Book Chapters

Saini, T., Rana, D. C., Attri, S., Chaturvedi, P., Dutt, V. (2021) Forecasting of air pollution via a low-cost IoT-based monitoring system. In Verma K.J., Saxena, D., and Gonzalez-Prida, D.V. (1st Eds.), EAI/Springer Innovations in Communications and Computing IoT and Cloud for Societal Good. Springer.

Saini, T., Tomar, G., Rana, D. C., Attri, S., Chaturvedi, P., Dutt, V. (2021) CloudIoT for pollution monitoring: A multivariate weighted ensemble forecasting approach for prediction of suspended particulate matter. In Verma K.J., Saxena, D., Gonzalez-Prida, D.V., and Shendryk, V., (1st Eds.), CloudIoT: Concepts, Paradigms, and Applications. CRC Press. (in press)

PATENT

Dutt Varun, Saini Tushar, Kumar Praveen, Pathania Ankush, Rana D. C., and Attri S. C. Low-power, low-cost air-quality monitoring, predicting, and warning system. November 28, 2019. Patent Application 201911048755, New Delhi, Patent Office Dwarka New Delhi 110078.(India)

WORK EXPERIENCE

Application Engineer, Oracle Feb 2022 - Till now
Health Science Global Business Unit

· Developing models that can map ambiguous medical events to preferred term via entity linking.
· Developing solver which can assign unbalanced task to workers via modified Hungarian Algorithm.

Associate Data Scientist, Cogneau Systems April 2021 - Jan 2022
Logistics and Supply Chain

· Developed mixed integer programming solver to solve inventory replenishment where there were around of 200 inputs.
· Developed sales forecasting models for two-wheeler manufacturer via ensemble of facebook prophets and recurrent neural network.
· Developed monte-carlo based warehouse simulator which outputs major KPIs revolving around number of workers required at what stage via simulating various inputs.

POSITION OF RESPONSIBILITIES

Teaching Assistanship	Information Technology and Development (HS528) at IIT Mandi
Open Source Volunteer	Mozilla.

SKILLS AND INTERESTS

Programming	C++, Python, and SQL
ML Frameworks	Torch, Tensorflow, Keras and Scikit.
Skills	Software engineering and development.
Platforms	Linux, Macintosh and Windows.
Interests	Hiking and Trekking