SARTHAK CHATURVEDI

⚲ Atlanta, GA ✉ sarthak@gatech.edu ✆ (470) 815-3289 G⁺ Academic Portfolio in sarthak-chaturvedi

EDUCATION

Georgia Institute of Technology *Atlanta, GA*
Master of Science in Computational Science and Engineering, GPA: 3.7/4.0 *Dec 2022*

National Institute of Technology *Karnataka, India*
Bachelor of Technology in Civil Engineering; Minor in Computer Science, GPA: 8.23/10 *Jun 2020*

EXPERIENCE

Georgia Institute of Technology *Atlanta, GA*
Graduate Research Assistant, Data Science and Policy Lab | Deep Learning *Dec 2021 - Present*
- Extracting user behavior at EV charging stations using GPT-3 and Transformer based NLP models
- Multi-label classification of unstructured, free-form natural language user reviews

Georgia Institute of Technology *Atlanta, GA*
Graduate Research Assistant, Connected and Autonomous Vehicle Lab | Data Science *Aug 2021 - Dec 2021*
- Optimization of mass public transit bus system in Atlanta using real time transit signal priority (TSP)
- Analyzed 2 M rows of mobility data to study the effect of TSP installation on bus schedule

Robert Bosch Centre for Data Science and AI *Chennai, India*
Research Fellow, IIT Madras | Data Science *Jul 2020 - Aug 2021*
- Created a real-time traffic flow monitoring system based on vehicle to infrastructure (V2I) communication
- Devised an IoT-based route and departure time guidance application
- Developed tensor and cluster based method for imputing travel time database
- Analyzed more than 5 M rows of connected infrastructure data for traffic and estimated travel time estimation

Delft University of Technology *Delft, Netherlands*
Research Intern, WaterLab | Optimization *May 2019 - Aug 2019*
- Optimized dissolved air flotation process by delivering performance efficiency of 91%
- Used Plackett–Burman design to infer air pressure as the only significant parameter affecting process efficiency
- Determined 2.5 atm as the optimum pressure for bubble particle interaction modeled using CNN

International Institute of Information Technology *Hyderabad, India*
Research Intern, Lab for Spatial Informatics | Mathematical Modelling *May 2018 - Jul 2018*
- Modeled river water temperature as a function of half a dozen parameters
- Developed and compared regression, statistical, and machine learning (ML) based models
- Proposed Machine Learning model with R squared statistic of 0.989 and the Nash Sutcliffe efficiency of 0.96

RELEVANT PROJECT

Infrastructure Health Assessment using Machine Learning | Georgia Tech *Aug 2021 - Dec 2021*
- Analyzed 3D LASER data for automatic pavement crack detection and severity classification
- Used Deep-Learning based XLBoost model to raise the accuracy of model to 87%

Optimizing the conversion efficiency of solar cell | Kumamoto University, Japan *Dec 2017 - Mar 2018*
- Proposed a novel design of solar cells to optimize the conversion efficiency of solar to electrical energy
- Spearheaded a three-member team to construct a prototype with a conversion efficiency of 45%
- Conferred JASSO Fellowship by the Government of Japan for the visit

PROGRAMMING SKILLS

Languages:	Python, C, Java, SQL
Dev. Tools:	Git, Google Co-lab, VS Code, PyCharm, NGINX, QGIS, Tableau, Azure Cloud Services
Libraries:	Pandas, NumPy, SciPy, ScikitLearn, Statsmodels, GeoPandas, Matplotlib, Seaborn, Plotly
NLP:	NLTK, SpaCy, PyTorch, Hugging Face, Transformers, OpenAI GPT-3

PUBLICATIONS

S. Chaturvedi, Deepak S., B. Dhivyabharathi, and B. R. Chilukuri, "Data Imputation for Traffic State Estimation and Prediction using WiFi Sensors,"CTRG 2021: 6th Conference of Transportation Research Group of India, Tiruchirappalli, India, December 14-17, 2021.

S. Chaturvedi, A. Ashok and B. R. Chilukuri, "Traffic State Estimation using DSRC- Enabled Probe Vehicles," 2021 International Conference on COMmunication Systems NETworkS (COMSNETS), 2021, pp. 715-722, DOI.

S. Chaturvedi, K.V. Gangadharan, "Increased efficiency of the solar cells by temperature regulation of an advanced nexus - Floating Solar Plankton," 7th International Engineering Symposium. Kumamoto University, Japan, March 7-9, 2018.

AI for Smart Cities, Advanced Network Modeling, Urban Infrastructure Planning | *Fall 2021*

Numerical Linear Algebra, Big Data & Policy, Modeling & Simulation, Transportation Systems Analysis | *Spring 2022*

Computational Data Analysis, CSE Algorithms, High Performance Computing | *Tentative Fall 2022*

Honours and Awards

Research Fellowship — Robert Bosch Centre for DS and AI
Awarded for one year of independent research at IIT Madras — *July 2020*

Batch of 1983 - Alumni Excellence Scholarship — NIT Karnataka
Awarded for all-round performance during undergraduate studies. — *Mar 2020*

Summer Research Fellowship — TU Delft, Netherlands
Awarded by Indo-Dutch research consortium to support my visit at TU Delft. — *Mar 2019*

JASSO Fellowship — Govt. of Japan
Awarded for my short term visit and research presentation at Kumamoto University. — *Feb 2018*