

Ishan Sahu

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🔗 scholar.google.co.in/citations?user=KVbb2PwAAAAJ

Education

Indian Statistical Institute, Kolkata

Master of Technology (M.Tech.), Computer Science

2014 – 2016
First Class with Distinction – 80.7%

Advisor: Dr. Debapriyo Majumdar

Thesis: A study on detecting fact vs non-fact in news articles

Related Coursework:

- Advanced Pattern Recognition
- Data Mining
- Artificial Intelligence
- Natural Language Processing
- Information Retrieval
- Cognitive Science

SRM University, Kattankulathur

Bachelor of Technology (B.Tech.), Electrical and Electronics Engineering

2010 – 2014
9.489 CGPA

CBSE – JVM Shyamali, Ranchi

Senior School Certificate Examination (Class XII)

2008 – 2010
90.2%

ICSE – Bishop's School, Ranchi

Secondary School Examination (Class X)

2008
96.428%

Work Experience

TCS Research, Tata Consultancy Services Limited

August 2016 – present

I am currently associated with Embedded Devices and Intelligent Systems Research Area at TCS Research.

Researcher

July 2017 – present

- Inference on Edge Devices: Working on deep learning model compression and optimization algorithms for deployment of time series classification models on edge devices with focus on tiny devices and sensor nodes. 2 published papers. Patents: 2 filed.
- Explainable ECG Classification: Ongoing project where we aim to build ECG classification models whose decisions are explainable and interpretable from a clinical perspective. This also involves inclusion of domain knowledge and design of effective metrics to evaluate such models. Patents: 1 in process.
- Hybrid Learning: Worked on approaches that make combined use of traditional signal processing techniques and deep learning methods for time series / sensor data classification tasks. Also worked on adaptive filter based fast learning approach for time series classification. 2 published papers. Patents: 2 filed.

Developer

August 2016 – June 2017

- Time series classification: Worked on design and development of an automated workbench for generating optimized machine learning models for time series (including sensor data) classification. This includes preprocessing raw data, feature generation, identification or selection of useful features, training and tuning of classification models. 1 published paper. Patents: 1 granted, 1 pending.

Publications

- Arijit Ukil, **Ishan Sahu**, Angshul Majumdar, Sai Chander Racha, Kulkarni, Anirban Dutta Choudhury, Sundeep Khandelwal, Avik Ghose, Arpan Pal. "Resource Constrained CVD Classification Using Single Lead ECG On Wearable and Implantable Devices". 2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC). IEEE, 2021.
- **Ishan Sahu**, Arpan Pal, Arijit Ukil and Angshul Majumdar. "Compressing Deep Neural Network: A Black-Box System Identification Approach". In 2021 International Joint Conference on Neural Networks (IJCNN), IEEE, 2021.
- Arpan Pal, Arijit Ukil, Trisrota Deb, **Ishan Sahu**, and Angshul Majumdar. "Instant adaptive learning: An adaptive filter based fast learning model construction for sensor signal time series classification on edge devices". In IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), IEEE, 2020.
- Arijit Ukil, Pankaj Malhotra, Soma Bandyopadhyay, Tulika Bose, **Ishan Sahu**, Ayan Mukherjee, Lovekesh Vig, Arpan Pal, and Gautam M Shroff, "Fusing features based on signal properties and timenet for time series classification". In ESANN, 2019.
- Arijit Ukil, **Ishan Sahu**, Chetanya Puri, Ayan Mukherjee, Rituraj Singh, Soma Bandyopadhyay, and Arpan Pal. "Automodeling: Integrated approach for automated model generation by ensemble selection of feature subset and classifier". In 2018 International Joint Conference on Neural Networks (IJCNN), IEEE, 2018.
- **Ishan Sahu** and Debapriyo Majumdar. "Detecting factual and non-factual content in news articles". In Proceedings of the Fourth ACM IKDD Conferences on Data Sciences (CODS), ACM, 2017.

Key Academic Project

A study on detecting fact vs non-fact in news articles

Master's thesis

Advisor: Dr. Debapriyo Majumdar

- Studied the then state of the art on fact detection as applied specifically to news articles.
- Used a combination of traditional features previously reported and few new features for classifying fact vs non-fact.
- Collection and preparation of datasets suitable for our task.
- Analyzed our results to get insights on the usefulness of the features and their applicability.
- This work was published at ACM IKDD CODS 2017.

Mini Academic Projects

Hindi to English Transliteration

November 2015 - December 2015

- Development of a system for transliteration of Hindi text in Devanagari script into Latin script (English).
- Used a statistical machine translation toolkit – MOSES SMT to train model with each character as tokens.

Duplicate Question Detection

May 2015 - June 2015

- Studied the syntactic structure of the questions using Stanford CoreNLP toolkit.
- Formulated relevant measure that can indicate the degree of similarity among them.

Skills

Programming Languages:

- Proficient: Python (in recent use), Java (not in recent use)
- Familiar: R, MATLAB, C

Toolkits and Libraries:

- In frequent use: numpy, scipy, matplotlib, scikit-learn, keras, tensorflow, pytorch
- Familiar: pandas, pyspark (Python); dplyr, tidyr (R)
- Others: Stanford CoreNLP, Intel OpenVINO

Development Tools:

- git, docker, anaconda
- basic bash scripting

Awards and Achievements

- Service & Commitment award, and few IP creation awards (for patent filings) at TCS Research.
- Received stipend/fellowship for the entire duration of M.Tech. study at Indian Statistical Institute, Kolkata.
- Received academic performance based scholarship for the academic years 2010-2011, and 2011-2012 at SRM University.
- Received Certificate of Merit from CBSE for being among the top 0.1 percent of successful candidates all over India in Computer Science course in Class XII examinations. Marks in Computer Science: 99/100
- Ranked first in school (among ~120 students) in Class X examinations.

References

Arpan Pal

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Embedded Devices and Intelligent Systems,
TCS Research, Tata Consultancy Services
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Debapriyo Majumdar

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Computer Vision and Pattern Recognition Unit
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