Rituraj Singh

Curriculum Vitae

Address	North of Azad Chowk, Gangjala, Saharsa, Bihar, India
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Email	riturajsingh.infotech@gmail.com
Google Scholar	Rituraj Singh
Website	https://devrituraj.github.io/
Languages	English (fluent), Maithili (native), Hindi (fluent), Bengali (beginner), French (beginner).

RESEARCH AREAS

My research focuses on developing algorithms for machine learning, mainly focused on unsupervised and semi-supervised learning. Currently, I am working on NLP - based problems. I am also passionate about applying machine learning methods in resource constraint languages, and building Human in the loop systems.

EDUCATION

PhD in Computer Science & Engineering   2018-2021
• *INRIA* • *IRISA* • *University de Rennes 1, France*

- Co-advised by Dr. Loïc Hélouët and Dr. Zoltán Miklós
- Thesis: Data Centric Workflows for Crowdsourcing Applications.

M.Tech in Computer Science & Engineering   2013-2015
• *Indian Institute of Technology, Patna, India.*

- Advised by Dr. Ashok Singh Sairam
- Thesis: Push based User Selection in Crowdsensing.

B.Tech. in Information Technology   2008-2012
Rajasthan Technical University, Rajasthan, India.

WORK EXPERIENCE

Full time Researcher   Oct 2021-now
TCS Research, TRDDC Pune, India

- Project- Misinformation detection and automatic candidate evaluation using unstructured resume dataset.
- Research areas - Natural Language Processing, Deep Learning, Unsupervised learning, Zero shot learning.

Researcher   2015-2017
TCS Research and Innovation Labs, Kolkata, India

- Research on applying machine learning models on sensor and wearable healthcare data. The work led to several publications and patents.

Internship   Summer 2014
TCS Research and Innovation Labs, Kolkata, India

- Project on anomaly detection using unsupervised learning in Smart meter sensor data.

RESEARCH INTERESTS

Artificial Intelligence: Machine Learning, Deep Learning, Probabilistic models.
Application: Natural Language Processing, Human in the loop AI, Crowdsourcing.

PATENTS

5. Soma Bandyopadhyay, Arijit Ukil, Rituraj Singh, Puri Chetanya, Arpan Pal, CA Murthy , "Anomaly detection by self-learning of sensor signals", Patent No. : US 10,743,821 B2

4. Sahu Ishan, Ayan Mukherjee, Arijit Ukil, Soma Bandyopadhyay, Puri Chetanya, Rituraj Singh, Arpan Pal, Rohan Banerjee , "Method and system for joint selection of a feature subset-classifier pair for a classification task", Pub. No. : US 2019/0361919 A1

3. Soma Bandyopadhyay, Arijit Ukil, Puri Chetanya, Rituraj Singh, Arpan Pal, C A Murthy, "Method and system for pattern recognition in a signal using morphology aware symbolic representation", Pub. No. : US 2019/0278971 A1

2. Soma Bandyopadhyay, Arijit Ukil, Puri Chetanya, Rituraj Singh, Arpan Pal, C A Murthy, "Systems and methods for detecting anomaly in a cardiovascular signal using hierarchical extremas and repetitions", Pub. No. : US 2019/0200935 A1

1. Arijit Ukil, Soma Bandyopadhyay, Puri Chetanya, Rituraj Singh, Arpan Pal, "Generalized one-class support vector machines with jointly optimized hyperparameters", Pub. No. : US 2019/0050690 A1

RESEARCH PUBLICATIONS

7. Rituraj Singh, Loïc Hélouët, Zoltán Miklós, "Reducing the Cost of Aggregation in Crowdsourcing", Transactions on Large-Scale Data and Knowledge-Centered Systems.

6. Loïc Hélouët, Zoltan Miklos, Rituraj Singh, "Cost and Quality Assurance in Crowdsourcing Workflows", PetriNets 2021. (Authors listed in alphabetical order).

5. Rituraj Singh, Loïc Hélouët, Zoltán Miklós, "Reducing the Cost of Aggregation in Crowdsourcing", International Conference on Web Services (ICWS 2020).

4. Pierre Bourhis, Loïc Hélouët, Zoltán Miklós, Rituraj Singh, "Data Centric Workflows for Crowdsourcing", 41st International Conference on Application and Theory of Petri Nets and Concurrency, (PetriNets) 2020. (Authors listed in alphabetical order).

3. Arijit Ukil, Ishan Sahu, Chetanya Puri, Ayan Mukherjee, Rituraj Singh, Soma Bandyopadhyay, Arpan Pal, "AutoModeling: Integrated Approach for Automated Model Generation by Ensemble Selection of Feature Subset and Classifier", International Joint Conference on Neural Networks (IJCNN) 2019

2. Arijit Ukil, Soma Bandyopadhyay, Chetanya Puri, Rituraj Singh, Arpan Pal, "Effective Noise Removal and Unified Model of Hybrid Feature Space Optimization for Automated Cardiac Anomaly Detection Using Phonocardiogarm Signals", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2018.

1. Arijit Ukil, Soma Bandyopadhyay, Chetanya Puri, Rituraj Singh, Arpan Pal, "On Solving the Class Imbalance Problem for Clinical Decision Improvement Using Heart Sound Signals",Proceedings of the IJCAI 2017 - Workshop on Learning in the Presence of Class Imbalance and Concept Drift

   Note: For the complete list of publications & patents, kindly click here to visit Google Scholar page.

ACHIEVEMENTS

- Best PhD thesis award at BDA (2021).

- Travel grant EDBT summer school, Lyon, France by INRIA.(2019).

- Fellowship - ANR Headwork Project - France (2018).

- Scholarship - GATE Masters Scholarship (2013-2015).

- Received multiple "TCS i-Citation Award" for publications and patents. (2016 & 2017).

- Part of team - Winner Physionet Challenge (2017).

TEACHING EXPERIENCE

Travaux Pratiques[1] for Artificial Intelligence - Topics on Deep Learning　　　Spring 2021

- *Graduate level introduction to Deep learning (Fully Connected Network, CNN, RNN, LSTM) using Tensorflow, Keras at ESIR — University of Rennes 1, France*

Travaux Pratiques Data Mining Course　　　Spring 2019,2018

- *Graduate level course on data mining using numpy, pandas, scipy, sklearn libraries at ESIR — University of Rennes 1, France.*

Teaching Assistant for JAVA programming language　　　Fall 2014

- *Undergraduate level course on JAVA programming - IIT Patna, India.*

Teaching Assistant for Shell programming and C programming language　　　Spring 2013

- *Undergraduate level course on Shell programming and C language - IIT Patna, India.*

COMPUTER SKILLS

- Programming languages: Python, Matlab, Java, C, C++
- Frameworks: Pytorch, Tensorflow, Sklearn, Spacy, Nltk
- Database Systems: MySQL, SPARQL.
- Scientific: LATEX, Git.

PROJECTS

- Augment common sense industry knowledge in ConceptNet knowledge graph.
- Misinformation detection in Resume.
- Maithili Language Processing Library.
- Data Centric Workflows for Complex Crowdsourcing Applications.
- Anomaly detection and its impact on disease classification on Bio-medical data.
- Crowdsensing using mobile phone.

REFERENCES

1. Dr. Loïc Hélouët, Chargé de recherche, SUMO Team, INRIA, Rennes, France.
2. Dr. Zoltán Miklós, Assistant Professor, Universite de Rennes 1, DRUID Team, IRISA, Rennes, France.
3. Dr. Ashok Singh Sairam, Associate Professor, Indian Institute of Technology, Guwahati, India.

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[1]Equivalent to Teaching Assistant
References on request