Shoumik Roychoudhury

PhD Candidate

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Education

PhD
Computer and Information Science
Temple University, December 2019 (expected)

MS
Electrical and Computer Engineering
Temple University, December 2011

BTech
Computer Science and Engineering
West Bengal University of Technology, May 2008

Skills

Programming Languages: C/C++, Java, Python, Matlab, SQL.

Frameworks used : TensorFlow, PyTorch, MySQL, PostgreSQL, HIVE.

Research expertise: Machine Learning, Data mining, Temporal pattern discovery, Time-series classification, Interpretable Machine Learning, Deep sequence modeling, Health informatics.

Awards

SIAM International Conference on Data Mining (SDM14) Student Travel Award.
Temple University Teaching and Research assistantship with full tuition waiver.

Services

Reviewer:
Start Talking Science, AMIA, ICTAI
Ad-Hoc reviewer:
KDD, IEEE Big Data, ICDM, Big Data Journal

Experience

Since Jan'13 — Research Assistant — Temple University, Philadelphia, USA
Research area: Machine Learning and Data mining.
Accepted first author publications:
- SDM 2019 (Acceptance rate: 22.7%)
- ECML 2017 (Acceptance rate: 27%)
- IEEE BIBE 2015 (Acceptance rate: 31%).

May'18-Aug'18 — Research Intern — Mitsubishi Electric Research Laboratories
Investigated fast pattern matching methods to identify and extract unique temporal patterns characterizing home electrical appliances from signals collected through Home Energy Management System (HEMS) for modeling smart home behaviors.

Jan'10-Dec'11 — Research Assistant — Temple University, Philadelphia, USA
Research area: Computer vision, Moving object tracking, Thermal image analysis.
Research abstract accepted at UKC 2011 for oral presentation.

Sep'09-Dec'12 — Teaching Assistant — Temple University, Philadelphia, USA
TA for multiple courses including Data structures, Signal processing, Digital circuit design, Control systems etc.

Jan'09-Jul'09 — Project Engineer — Wipro Technologies, Kolkata, India
Software application testing.

May'07-Aug'07 — Summer Intern — Indian Statistical Institute, Kolkata, India
Developed algorithms for identification of recombinant DNA sequences and crossing over point using JAVA.

Research and Projects

Sep'18-Jun'19 — IQVIA funded Disease risk estimation project
- Created and analyzed longitudinal patient visits from a multi-domain EHR repository of 40 million patients by leveraging the OMOP CDM architecture using HiveQL.
- Developed disease-agnostic multi-domain stacked deep sequence model using PyTorch which significantly improved disease detection predictive performance in terms of AUPRC by more than 10% on average compared to the individual domain models as well as joint domain model.

Jan'16-May'18 — National Science Foundation funded BIGDATA project
- Proposed an algorithm implemented in Java which significantly improved the time-series classification accuracy by extracting novel temporal subsequence order information from multivariate time-series data.
- Improved identification of Poll-score trends in 2016 US Presidential election from temporal information extracted from large scale twitter data of 12 million tweets via a ensemble based multivariate time-series classification model implemented in Java.
- Major improvement in classification accuracy for across 18 highly imbalanced time-series datasets via a novel cost-sensitive learning framework implemented in Java.

Jan'13-Dec'15 — ONR funded SBIR project
- Proposed interpretable cost-sensitive framework for early classification of cardiac arrhythmia alarms from bedside monitors in ICU implemented in Matlab.
- Statistically significantly improvement in terms of classification accuracy over state-of-the-art methods achieving 34% false alarm suppression with 100% true alarm detection rates.

Aug'12-Dec'12 — DARPA funded project
- Proposed a novel data driven approach to discover proxies for target diagnosis from large scale hospital discharge records databases achieving 94% prediction accuracy.