

# Shoumik Roychoudhury



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<https://shoumikrc.github.io/>

## Education

PhD

Computer and Information Science  
Temple University, May 2020

MS

Electrical and Computer Engineering  
Temple University, December 2011

BTech

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

## Skills

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

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

Research expertise: Machine  
Learning, Data Mining, Deep Learning,  
Time-series Analysis, Time-series  
Classification, Health Informatics.

## Awards

SIAM International Conference on  
Data Mining (SDM14) Student Travel  
Award.

## Services

PC Member:

ECML-PKDD 2020 (Research Track)

Invited Reviewer:

ECML-PKDD , Start Talking Science,  
AMIA, ICTAI, Mary Ann Liebert Big  
Data

Ad-Hoc reviewer:

KDD, IEEE Big Data, ICDM

## Research Experience

- Jan'13-Present Research Assistant Temple University, Philadelphia, PA  
Research area: Machine Learning and Data Mining, Time-series Analysis, Time-series classification.  
Dissertation Title: Leveraging Temporal subsequences for Time-series Classification Accepted first author publications:  
• SDM 2019 (Acceptance rate: 22.7% )  
• ECML/PKDD 2017 (Acceptance rate: 27%)  
• IEEE BIBE 2015 (Acceptance rate: 31% ).
- May'18-Aug'18 Research Intern Mitsubishi Electric Research Laboratories (MERL), Cambridge, MA  
Investigated fast pattern matching methods to identify and extract unique temporal patterns characterizing home electrical appliances from signals collected through Home Energy Management System.
- Jan'10-Dec'11 Research Assistant Temple University, Philadelphia, PA  
Research area: Computer vision, Thermal image analysis.  
Thesis Topic: Tracking Human in Thermal Vision using Multi-feature Histogram.  
Research abstract accepted at UKC 2011 for oral presentation.
- Sep'09-Dec'12 Teaching Assistant Temple University, Philadelphia, PA  
TA for multiple courses including Data Structures, Signal processing, Digital Circuit Design, Control Systems, Discrete Mathematics.
- Jan'09-Jul'09 Project Engineer Wipro Technologies, Kolkata, India  
Software application testing.

## Research 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.  
• As a member of a 4-person team 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 an 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 significant 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.