Supreeth Prajwal Shashikumar

Contact Information

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Blog:	https://point85.ai/
Google Scholar:	https://goo.gl/DauGSL

Education

2015 - Present | **Georgia Institute of Technology, USA**
PhD Candidate, Electrical and Computer Engineering
Advisor: Prof. Shamim Nemati
Specialization: Machine learning in healthcare

2015 - 2019 | **Georgia Institute of Technology, USA**
M.S, Electrical and Computer Engineering
Advisor: Prof. Shamim Nemati

2011 - 2015 | **National Institute of Technology Karnataka, Surathkal, India**
Bachelor of Technology, Electronics and Communcation Engg.
Advisor: Prof. Deepu Vijayasenan
Thesis: *Speech Enhancement using Beamforming Technique*

Research Internships

Visiting Graduate Student, Summer 2019 - Present
UC San Diego Health, Dept. of Biomedical Informatics, USA

- Supervisor: Prof. Shamim Nemati

Research Intern, Summer 2018
Microsoft Research Cambridge, UK

- Worked in the Healthcare AI team to develop interpretable models for predicting clinical outcomes of patients with Traumatic Brain Injury
- Supervisor: Pijika Watcharapichat, Cheng Zhang and Ari Ercole

Engineering Intern, Summer 2014
Qualcomm Incorporated, Bangalore, India

- Supervisor: Karnam Srikar

Research Intern, Summer 2013
Electro-Medical and Speech Technology Laboratory, IIT Guwahati, India

- Worked on detection of Vowel Onset points and Vowel End Points in speech
- Supervisor: S.R.M. Prasanna

Honors and achievements

- Selected to attend the Deep Learning and Reinforcement Learning Summer School - 2019 organized by CIFAR and AMII at University of Alberta, Canada. [300 accepted out of 1300] 2019
- Awarded the student travel grant to attend the KDD conference 2018
- Awarded travel grant to attend *Rapid Biomedical Knowledge Base Construction from Unstructured Data* workshop at Stanford University. 2017

Under Review/In preparation

- **DeepAISE — An End-to-End Development and Deployment of a Recurrent Neural Survival Model for Early Prediction of Sepsis**, *Journal paper under review*
- **Learning to Treat Septic Shock Patients Using a Counterfactual Reasoning Framework**, *Journal paper under review*
- **AIDEx: A FHIR Based Real-time Software Platform for Forecasting the Onset-time of Sepsis**, *Conference paper under review*
- **An Improved Utility-Based Evaluation Metric for Clinical Sequential Prediction Tasks**, *Journal paper in preparation*
- **Machine learning for time-sensitive outcome prediction after severe traumatic brain injury**, *Conference paper in preparation*

Journal Publications

- **Multiscale Network Dynamics between Heart Rate and Locomotor Activity Are Altered in Schizophrenia:**, Erik Reinertsen, Supreeth P Shashikumar, Amit J Shah, Shamim Nemati and Gari D Clifford, *Physiological Measurement, 2018*
- **Multiscale Network Representation of Physiological Time Series for Early Prediction of Sepsis:**, Supreeth P Shashikumar, Qiao Li, Gari D Clifford and Shamim Nemati, *Physiological Measurement, 2017* [Physiological Measurement Highlights of 2017]
- **Early Sepsis Detection in Critical Care Patients using Multiscale Blood Pressure and Heart Rate Dynamics:**, Supreeth P Shashikumar, Matthew D Stanley, Ismail Sadiq, Qiao Li, Andre Holder, Gari D Clifford and Shamim Nemati, *Journal of Electrocardiology, 2017*

Conference Publications

- **Detection of Paroxysmal Atrial Fibrillation using Attention Based Bidirectional Recurrent Neural Networks:**, Supreeth P. Shashikumar, Amit J. Shah, Gari D. Clifford and Shamim Nemati, *24th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD), 2018*
- **A FHIR-Enabled streaming sepsis prediction system for ICUs:**, Joel R Henry, Dennis Lynch, Jeff Mals, Supreeth P Shashikumar, Andre Holder, Ashish Sharma and Shamim Nemati, *40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2018*
- **A deep learning approach to monitoring and detecting atrial fibrillation using wearable technology:**, Supreeth P. Shashikumar, Amit J Shah, Qiao Li, Gari D Clifford and Shamim Nemati, *IEEE EMBS International Conference on Biomedical & Health Informatics (BHI), 2017*

- **Improved vowel onset and offset points detection using bessel features:**, Biswajit Dev Sarma, Supreeth P. Shashikumar and SR Mahadeva Prasanna , *International Conference on Signal Processing and Communications (SPCOM), 2018*

Symposiums and arXiv manuscripts

- **DeepAISE on FHIR—An Interoperable Real-Time Predictive Analytic Platform for Early Prediction of Sepsis:**, Vidyashankar Lakshman, Fatemeh Amrollahi, Veera Supraja Koppisetty, Supreeth P. Shashikumar, Ashish Sharma, Shamim Nemati, *American Medical Informatics Association Symposium 2018 – FHIR Applications Showcase track* [3rd place winner]
- **Does the "Artificial Intelligence Clinician" learn optimal treatment strategies for sepsis in intensive care?**, Russell Jeter, Christopher Josef, Supreeth P. Shashikumar and Shamim Nemati, *arXiv:1902.03271*

Patents

- **System for predicting or identifying patient deterioration or improvement**, Shamim Nemati, Gari D. Clifford, Supreeth P. Shashikumar, Andre Holder, *United States provisional patent application #62/534,322, filed July 19, 2017*
- **Method for detecting abnormal cardiac activity:** Shamim Nemati, Supreeth P. Shashikumar, *United States provisional patent application #62/437,457, filed December 21, 2016*

Service and organization

- Co-organizer for the competition - **Early Prediction of Sepsis from Clinical Data: the PhysioNet/Computing in Cardiology Challenge 2019**
  - https://physionet.org/challenge/2019/
- Teaching Assistant, Deep Learning, Emory University, Spring 2017
  - http://nematilab.info/CS584.html
- Moderator, Journal Club, Dept. of Biomedical Informatics, UCSD
  - http://nematilab.info/bmijc/

Advising

- Sajad Seyed Mousavi (PhD Intern), Northern Arizona University (co-advised with Shamim Nemati), Summer 2019

Coursework

- **Graduate Coursework:** Deliberate Innovation & Startups, Probabilistic Graphical Models, Machine Learning for Trading, Bayesian Statistics, Deep Learning, Statistical Machine Learning, Information Theory and Coding, Random Process, Statistical Learning and Signal processing, Advanced Digital Signal Processing, Advance Programming Techniques

Skills

- **Programming Languages:** Python, Matlab
- **Libraries:** Tensorflow, PyTorch, HTK (Hidden Markov Model Toolkit)