Tom Hartvigsen

https://wpi.edu/people/doctoral-student/twhartvigsen
twhartvigsen@wpi.edu | 585.245.2767

EDUCATION

WORCESTER POLYTECHNIC INSTITUTE
Ph.D. in Data Science
Expected May 2021 | Worcester, MA
Cum. GPA: 3.83 / 4.0
Advisor: Dr. Elke Rundensteiner

SUNY GENESEO
BA in Applied Mathematics
Minor in BioMathematics
May 2016 | Geneseo, NY
Cum. GPA: 3.07 / 4.0

LINKS

LinkedIn:// **in/thartvigsen**
Github:// **thartvigsen**

COURSEWORK

GRADUATE
Knowledge Discovery and Data mining
Introduction to Data Science
Statistical Learning
Database Management Systems
Big Data Management*
Business Intelligence*
Machine Learning**
Deep Learning**
*to be completed Dec 2017
**to be completed May 2018

UNDERGRADUATE
Modeling Biological Systems
Combinatorics
Differential Equations
Probability and Statistics
Linear Algebra
Calculus I-III

SKILLS

PROGRAMMING
Python - TensorFlow for Deep Learning, Scikit-Learn for Machine Learning • R - Statistical Learning, Graph mining, ggplot2 • Shell • MATLAB - General Programming • LATEX • SQL - PostgreSQL for research, SQLPLUS for DBMS Course

AWARDS

2016   GAANN Research Fellowship
        U.S. Department of Education

EXPERIENCE

WPI | GAANN Research Fellow
August 2016 – present | Worcester, MA
- Working with Dr. Elke Rundensteiner on Machine Learning/Deep Learning on Time Series Data.

UNIVERSITY OF ARIZONA | Research Experience For Undergraduates Intern
June 2015 – Aug 2015 | Tucson, AZ
- School of Natural Sciences and the Environment advised by Dr. Shirley Papuga.
- Used MATLAB to design Machine Learning algorithms to segment sequences of images of Creosote Bushes to record changes through time in regards to drought.
- Presented findings at the Undergraduate Research Opportunities Consortium (UROC) in August 2015.

RESEARCH

DATA SCIENCE RESEARCH GROUP Aug 2016 – Pres. | Worcester, MA
- Currently focusing on **early time series classification** with application to infection prediction.
- Developing deep recurrent models for using TensorFlow, moving towards Deep Reinforcement Learning.
- Developed CREST, a python-driven machine learning tool for infection detection in hospitals using SVMs, Random Forests, and Logistic Regression.
- Used the publicly available MIMIC III Database, Python, and PostgreSQL.

BIOMATHEMATICS INNOVATION GROUP Jan 2013 – May 2016 | Geneseo, NY
- Used R to build population networks driven by differential equation models. Used Python to collect lyrical data from song lyric websites. Used Python to scrape IMDB and build graphs relating movies.
- Built interdisciplinary projects, mentored younger students, and brought 6 projects to undergraduate research conferences.

PUBLICATIONS

- **Hartvigsen, T.**, Sen, C., Brownell, S., Teeple, E., Rundensteiner, E. (January, 2018). **Early Prediction of MRSA Infections using Electronic Health Records**. HealthInf 2018.

- Sen, C., **Hartvigsen, T.**, Claypool, K., Rundensteiner, E. (2017, September). **CREST - Risk Prediction for Clostridium Difficile Infection Using Multimodal Data Mining**. ECML/PKDD 2017.

- **Hartvigsen, T.**, Sen, C., Teeple, E., Rundensteiner, E. (2017). **Risk Stratification and Diagnostic Performance of a Machine Learning Algorithm for Clostridium Difficile Detection Using Electronic Health Records Data**. Preparing for submission the the New England Journal of Medicine in October 2017.