

# SALIM MALAKOUTI

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Legal status in US: Permanent Resident

## EDUCATION

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**PhD in Computer Science, University of Pittsburgh**  
**BSc, Amirkabir University of Technology, Iran**

*September 2013- Present*

*September 2008- 2013*

## RELATED TECHNICAL SKILLS

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<b>Programming and Scripting Languages</b>	Java, Python, C++, PHP, Javascript, Bash
<b>Data Science, ML &amp; Deep Learning</b>	Matlab, Scikit-learn, Numpy, Keras, Tensorflow, Pandas, MLLib, Weka
<b>Database and Distributed</b>	MySQL, Cassandra, Ne04j, Oracle, MongoDB, Hadoop
<b>Tools, Frameworks, Platforms</b>	Solr, Nutch, WordNet, Jetty, Node.JS, ReactJS

## RESEARCH INTERESTS

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Data Science, Machine learning, Data Mining, Multitask learning, Transfer Learning, Timeseries Analysis and Prediction, Deep Learning, Matrix Factorization

## RESEARCH

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### **Hierarchical Multitask Learning**

*Working on Multitask learning and transfer learning especially in presence of large number of tasks. Investigating new ideas to learn and exploit hierarchies of tasks, new methods of sharing weights and transfer of knowledge*

- Transfer Learning, Multitask learning, Domain Adaptation, Hierarchical Learning
- Optimization, Regularization, Linear models, SVM, regression and etc., Random Forest

### **Personalized Machine Learning**

*Investigating personalized models while allowing transfer of knowledge from generalized models and similar users*

- Multitask Learning, Matrix Factorization

### **DeepEHR: Deep learning on Multivariate Timeseries Medical Data**

*Using Deep Learning algorithms to learn both temporal and non-temporal representations of medical data*

- CNN, LSTM, and Encoder decoder networks

## EXPERIENCE

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### **Graduate Research Assistant, University of Pittsburgh**

2015 - Present

*ICU Anomaly Detection project (Milos Hauskrecht's Lab) aiming to develop methods for realtime prediction and anomaly detection for patient medical orders in ICU units from UPMC hospital*

- Developing predictive models based on SVM, Bayesian Decision Tree, Hybrid Decision trees and other Machine Learning models for prediction and anomaly detection in multivariate timeseries medical data
- Studying impact of highly imbalanced data on SVM, Bayesian Networks and Bayesian Tree models
- Developing a realtime, distributed Electronic Health Record data processing pipeline (Java, Python, Mysql, C++)
- Developing a modular data processing and machine learning framework that is used by our team to develop a realtime machine learning pipeline for medical outlier detection (Java, Python, Mysql, C++)

### **Teacher Assistant and Peer Review System, University of Pittsburgh**

2013 - 2015

*Data Structures, Web Programming, Java*

- Awards: Best Teacher Assistant Award (2015)
- Highlights: Developed a portal for peer review of students by students that would encourage maximum peer review contribution instead of evaluating students based on peer review results. This showed promising increase in peer review participation and enhanced positive impact of reviews.

*Worked on a novel technique to develop an extended context aware PageRank*

- Developed a novel webpage segmentation algorithm and segment role classification method
- Improved PageRank algorithm using webpage segmentation and segment roles to obtain a context aware score

## OPEN SOURCE PROJECTS

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### MsgPack-Pystream

2018

*Efficient SAX-like library for MessagePack binary serialization format n designed to handle Big Data*

- Python package written with both pure python backend and C0extension

### PyLods Parser

2018

*A python library similar to famous Jackson.Json in JAVA for object serialization that allows automatic identification of nested objects based on class definitons and annotations*

- Written as a python package in both pure python and as a C-extension
- Supports Json and MsgPack so far

## OTHER RELEVANT PROJECTS

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### Automatic Short Answer Grading

*Extracting multiple NLP features from student short answer to automatically grade exam questions*

- LDA, N-gram, SVM, Decision Tree, Bayesian Networks, Random Forest and etc.

## PUBLICATION

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Boroujerdi, E. G., Mehri, S., Garmaroudi, S. S., Pezeshki, M., Mehrabadi, F. R., Malakouti, S., & Khadivi, S. (2014, May). A study on prediction of user's tendency toward purchases in websites based on behavior models. In Information and Knowledge Technology (IKT), 2014 6th Conference on (pp. 61-66). IEEE.

Malakouti, Salim, et al.9th International Conference on Virtual Learning. Bucharest University Press, A Category-Based PageRank Algorithm on Finding Multi-Field Experts in Yahoo! Answers, 2014

## HONORS AND AWARDS

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### Best Teacher Assistant Award

Computer Science, University of Pittsburgh 2015

### 2nd & 3rd in RoboCup Rescue Simulation

International Robocup Competitions 2012, 2013

## RELEVANT COURSES

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Machine Learning

Advanced Machine Learning

Advanced NLP

CS, University of Pittsburgh

Computer Vision

Game Theory &amp; Graph Theory

Algorithms

Dynamic Optimization

Robotics, Carnegie Mellon University

Timeseries Analysis &amp; Stat

Stat, University of Pittsburgh

Bayes Computation

DBMI, University of Pittsburgh

## EXTRACURRICULAR

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Vice President of Finance, Graduate and Professional Students Government at University of Pittsburgh with \$300k budget, 2015-16

President, Iranian Student Assocation,\$65K annual expenses including \$12k budget and \$53k income, 2014-15

Technical(Maintainance) Committee Member of RoboCup Rescue Simulation League, 2013-14

President, Student Scientific Association, Computer Science, Amirkabir University of Technology, 2011