SEPEHR KAZEMIAN

Data Scientist
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Professional Summary

- Master's degree in computer science with 5+ years of experience in algorithms and data structures as well as *software development* with *C/C++, Python, R, Java, JavaScript, SQL,* and *Unix Bash*
- Proficient in *traditional machine learning* like *regression*, *classification*, *bagging* models and *SVM*, *time-series analysis* like *RNNs* and *Auto Regressive* models (ARIMA), *Bayesian modeling*, and *deep learning*; and knowledgeable in *convolution neural networks (CNN)*, and *natural language processing (NLP)*
- Extensive experience in *machine learning algorithms*, *mathematical optimization models*, *visualization tools*, and *feature engineering* as well as libraries such as *Tensorflow*, *Sickit-learn*, *Numpy*, and *Pandas*
- Familiar with cloud computing concepts, infrastructures, and networking as well as work experience with Amazon Web Service (AWS) infrastructure, Hadoop, and Apache Spark big data framework
- Skillful in problem-solving and communication skills (author of 6 papers), and a great team player

Work Experience

Sep 2018 – Apr 2020 **Lumped Markovian Clustering and Feature Engineering for Time-series Prediction**
Graduate Research Assistant - M.Sc. Thesis

- Introducing a data-dependent *clustering model* using Markovian and Lumping properties
- Introducing a *Loss Function* appropriate to environments with asymmetric costs (52% cost reduction)
- *Feature analysis of time-series data* using various techniques like AutoRegressive models (such as ARIMA)
- Introducing a *metric* suitable for time-series vector space comparison
- Building a model for *multi-step ahead prediction*, competitive with deep sequence models (92% accuracy)

Technologies: Python, Tensorflow, SciPy, Git, Scikit-learn, NumPy

May 2018 – May 2019 **Machine Learning Engineer**
Telus, Internship

- Applying *Artificial Intelligence (AI)* algorithms to automate wireless networking testing devices
- Using *Artificial Intelligence (AI)* and *low-level programming* to test updated router firmware
- Testing wireless devices capabilities and their suitability with produced routers

Selected Projects

Sep 2018 – Dec 2018 **Channel Utilization Prediction and Clustering**
Machine Learning Course

- Exploiting various clustering, machine learning, and deep learning algorithms (such as LSTM and GRU) to cluster and predict utilization of the network
- Collecting Wi-Fi utilization data from academic and residential buildings

Technologies: Python, SciPy, Git, Scikit-learn, NumPy

Jan 2018 – Aug 2018 **Throughput Maximization of Fog Nodes through Policy Modification**
Fog Computing Course

- Using centralized controller and artificial intelligence to modify policies of the fog node
- Exploiting an open-source and industrial Linux-based operating system on fog nodes
- Finding best possible channel for fog nodes to operate and to maximize the throughput

Technologies: Python, Git, TC, IPtables, OpenWrt

Sep 2017 – Dec 2017 **Data Driven Models for Building Occupancy Estimation**
Sustainable Computing Course

- Casting the *occupant count determination* problem as a state estimation problem in a non-linear dynamical system
- Comparing the predictive power of two standard state estimation techniques on two buildings that contain dedicated sensors and HVAC sensors, using *Particle Filtering* and *Time-series Neural Networks*
- Studying the *sensitivity of the results* to the maximum occupancy of a room

Sep 2015 – Sep 2016 **QoS improvement for multimedia services over SDN**
B.Sc. Thesis

- Prioritizing packets based on their importance and deadline
- Delay control in multimedia services over Software Defined Networking environment

Education

2017–2020 **University of Alberta**
M.Sc. in Computer Science
GPA – 3.8/4

2012–2017 **AmirKabir University of Technology**
B.Sc. in Computer Science
Last 3 years GPA – 3.8/4

Technical Skills

Programming Languages *Python, C, C++, Java*

ML/DL Libraries *Scikit-learn, NumPy, SciPy, Tensorflow, Pytorch, Keras, Plotly*

Database Management *SQL, MySQL, NoSQL, Hive, Pandas, MongoDB*

Big Data Framework *Hadoop, Apache Spark (PySpark)*

Web Development *HTML, CSS, JavaScript, PHP, JQuery, AJAX*

Software Tools *Git, Anaconda, Docker, Jupyter Notebook, OpenWrt*

Publications

1) Sepehr Kazemian, and Ioanis Nikolaidis. "Lumped Markovian Estimation for Wi-Fi Channel Utilization Prediction" 2019 15th International Conference on Network and Service Management (CNSM). IEEE, 2019.

2) Habibi, Pooyan, Mohammad Farhoudi, Sepehr Kazemian, Siavash Khorsandi, and Alberto Leon-Garcia. "Fog Computing: A Comprehensive Architectural Survey." IEEE Access 8 (2020)

3) Shadan Golestan, Sepehr Kazemian, and Omid Ardakanian. "Data-Driven Models for Building Occupancy Estimation." Proceedings of the Ninth International Conference on Future Energy Systems. ACM, 2018.

4) Sepehr Kazemian, and Siavash Khorsandi. "QoS improvement for multimedia services over SDN." 2017 25th Iranian Conference on Electrical Engineering (ICEE). IEEE, 2017.

Selected Courses

Classroom Linear Algebra, Introduction to Machine Learning, Introduction to Statistics and Probability, Software Engineering, Advanced Programming, Fog Networking, E-Commerce

Online Deep Learning Specialization, Introduction to Machine Learning, Reinforcement Learning Specialization, Text Mining and Analytics, Natural Language Processing (NLP)

Volunteering

March 2019 – April 2020 *Academic Director in Computer Science Graduate Students Association (CSGSA)*

Teaching Assistantship Experience

Operating Systems (2017-2020)

- A comprehensive course on Operating Systems. Responsibilities: designing assignment questions, attending lab sessions, helping students with assignment-related questions, and marking

Data Structure and Algorithms (Fall 2018)

- A comprehensive course on Algorithms and Data Structure. Responsibilities: designing assignment questions, attending lab sessions and lectures, helping students with assignment questions, and marking.