Mikhail M.Meskhi

CONTACT INFORMATION

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RESEARCH INTERESTS

Machine learning applications in self-adaptive learning systems (learning to learn) such as meta-learning and transfer learning. Natural Language Processing applications for sentiment analysis for stock market prediction. Statistical learning and deep learning applications.

EDUCATION

University of Houston, Houston, Texas USA
Doctor of Philosophy in Computer Science; GPA: TBD **August 2019 - Present**

North American University, Stafford, Texas USA
Bachelor of Science in Computer Science; GPA: 3.91 **September 2015 - May 2019**

RESEARCH EXPERIENCE

Research Assistant

Pattern Analysis Lab - University of Houston **January 2017 - Present**
Advisor: Dr. Ricardo Vilalta

- Research: Domain Adaptation by Transferring Model-Complexity Priors Across Tasks
  - Developed and implemented a complexity metric based on neighborhood cluster entropy that calculated a given task's complexity.
  - Developed and implemented a novel sampling technique based on the aforementioned complexity metric. Sampling at most complex neighborhoods led to faster models and higher accuracy by transferring knowledge. *(See publication for results)*
- Research: Topological Data Analysis and Meta-Learning
  - Currently working on identifying landmark meta-features based on *Topological Data Analysis* that will facilitate meta-learning by better describing a giving task and selecting a better learning algorithm.
- Research: One-Shot Learning
  - Currently working on identifying a novel approach on how to optimally represent a group of similar objects with a general object. A learning algorithm can train on a single instance and be able to perform well on similar domains better than random. The goal is to over come the need for vast amounts of data needed for neural networks to converge on.

INDUSTRY EXPERIENCE

Data Science Intern

Planning Design Research Corporation (PDR Corp) **February 2019 - Present**
Built automated data extracting and processing pipelines using apache-airflow that ETL into AWS S3 which later would be loaded in Microsoft Power BI for report building and visualization for better client project comparison and analysis.

TEACHING EXPERIENCE

Mentor/Tutor

North American University **January 2016 - December 2017**
Responsible for incoming Computer Science freshmen. Assisted and tutored entry level Computer Science and Mathematics classes. Helped freshmen join the Starter's Club in the ACM Club.

- MATH 2314 Calculus I.
- MATH 2317 Discrete Mathematics.
- COMP 1411 Introduction to CS I.
- COMP 1412 Introduction to CS II.

Community Experience

Hackathon Organizer/Founder

North American University **October 2017**

Organized a Major League Hacking (**hackNAU**) partnered hackathon for college students in Texas at North American University. The event gathered over 300 registrants and 100 participants from various Texas universities. Commanded $7,000 fund for event sponsorship/organization.

Publications

Domain Adaptation by Transferring Model-Complexity Priors Across Tasks. R. Vilalta, K. D. Gupta, D. Boumber, **M. M.Meskhi** (2018). Publications of the Astronomical Society of the Pacific.

Projects

MtL-Progress **April 2019**

Repo to track the progress in Meta-Learning (MtL) and give an overview of the state-of-the-art (SOTA) across the most common MtL problems and research topics. It aims to cover both traditional and core MtL tasks. (Link)

MetaLearn **May 2018**

Meta-feature extraction tool for meta-learning related tasks and OpenML.org written in collaboration with the Data Mining Lab at Brigham Young University. (Link)

MLRP *(Machine Learning Resume Processing)* **April 2018**

Created a resume parsing system that helped the user to understand what tech company they were best suited for. Won 1st place medal at HackHouston 2017. (Link)

Transfer-AL **June 2017**

Implementation and packaging of Domain Adaptation by Transferring Model-Complexity Priors Across Tasks. (Link)

Honors and Awards

MLH (Major League Hacking): First Place Award HackHouston, 2017

North American University: Exceptional Merit Scholarship, 2015-2018

North American University: President's Honor Roll , 2015-2017

Extracurricular Activities

- ACM (Association for Computing Machinery), *Member* **September 2015 - Present**
- NAU-ACM, *Member* **September 2015 - January 2018**
- NAU-ACM, *President* **September 2017 - January 2018**
- NAU-ACM, *Secretary* **January 2017 - September 2017**

Technical Skills

- **Languages:** Python, MATLAB, R, Java, LaTeX, C/C++, Shell/Bash Scripting, Javascript.
- **ML Frameworks/Libraries:** Tensorflow, Scikit-learn, Pandas, Numpy, OpenCV.
- **Dev Ops Frameworks:** Apache-Airflow, Apache-Spark, PostgresSQL, Hadoop, AWS S3, AWS Glue, AWS Aurora.

References

- Assistant Prof. Dr. Ricardo Vilalta, Department of Computer Science , University of Houston, Houston, TX, USA, rvilalta@uh.edu
- Dr. Dainis Boumber, Department of Computer Science, University of Houston, Houston, TX, USA, dainis.boumber@gmail.com
- Jason Holmes, Planning Design Research Corporation (PDR Corp), Houston, TX, USA, jholmes@pdrcorp.com
- Associate Prof. Dr. Kemal Aydin, Department of Computer Science, North American University, Stafford, TX, USA, kemal@na.edu
- Dr. Hakan Haberdar, Machine Learning Scientist, FICO-Fair Isaac Corporation, San Diego, CA, USA, haberdar@gmail.com