Ali Pesaranghader

Ph.D. in Machine Learning and Senior AI Research Scientist

https://alipsgh.github.io/ | https://github.com/alipsgh | alipsgh@gmail.com | +1 (647) 528-6238

PROFESSIONAL EXPERIENCES:

- **AI Research Scientist** LG Toronto AI Lab, Toronto, Canada July 2021 – Present
  - Research on Knowledge Graphs, Question Answering, and Conversational Chatbots
  - Collaborate with the University of Toronto graduate researchers on ConvRecSys (CRS)

- **Senior Research Scientist** CIBC, Toronto, ON, Canada May 2019 – July 2021
  - Verbatim and NPS Analysis: Developed a multi-channel neural network to process text sequences and numerical features to classify verbatims and also analyze the sentiment of NPS surveys
  - Bank2Vec: Co-led a project to train and fine-tune deep word representations, i.e., embeddings, and language models against CIBC and Canadian banks corpora for financial NLP tasks
  - Intent Classification and Interpretation: Built an interpretable solution to understand the intent and the topic of chat transcripts
  - Conversational AI: Created chat and QA bots using the Rasa and DeepPavlov frameworks
  - MLOps Chain: Co-developed a pipeline for deploying ML solutions as CaaS on OpenShift through Jenkins
  - COVID Hardship Model: Created a hybrid neural network to identify clients undergoing hardship during the pandemic
  - Partnership with Vector Institute: Collaborated on projects related to data shift and reinforcement learning

- **Deep Learning Practitioner** Ottawa, ON, Canada Aug. 2018 – Apr. 2019
  - Worked on applications of deep learning in image and natural language processing
  - Tools: Pytorch, Keras, NumPy, Matplotlib, UMLS, and WordNet
  - Published the results in well-known venues, including JAMIA and MAIS 2018

- **Research Assistant, Machine Learning** University of Ottawa, ON, Canada Sep. 2014 – Mar. 2018
- **Class: Soft-funded Research Bursary – Doctorate**
  - Introduced new adaptive learning algorithms for evolving data streams
  - Created the Tornado framework for data shift detection and online machine learning in Python (Available on GitHub)
  - Developed real-time decision-makers in Python and Java
  - Collaborated and brainstormed with fellows in the IDeAL research group
  - Tools: Python, Java, Massive Online Analysis Framework (MOA), Scikit-learn, Matplotlib, NumPy, and RapidMiner
  - Published the results in top-ranked conferences and journals, e.g., Machine Learning Journal, ECML 2016, IJCNN 2018

- **Teaching Assistant / Corrector, Data Science Courses** University of Ottawa, ON, Canada Jan. 2016 – Apr. 2018
  - Presented the core concepts of Data Science to students
  - Prepared and organized demos for laboratories
  - Assisted professors to create datasets and materials
  - Courses:
    - CSI5387: Data Mining and Concept Learning — Winter 2018 (TA), Fall 2016 (Corrector)
    - CSI5311: Distributed Databases and Transaction Processing Systems — Winter 2018, 2016 (Corrector)
    - CSI4142: Introduction to Data Science — Winter 2017 (Corrector)

- **Freelance Web and Content Developer** KL, Malaysia Jan. 2011 – Dec. 2012
  - Developed backend components (PHP)
  - Designed interactive UI and stylesheets (HTML, CSS, and JavaScript)
  - Created dynamic web contents (jQuery)
  - Normalized and administered databases (MySQL)

- **Team Lead, and Data Analyst** SFMD (Sobhan), Tehran, Iran Aug. 2009 – Dec. 2010
  - Led frontend and backend web developers (HTML, CSS, JavaScript, jQuery, and Ajax)
  - Administered and maintained databases (MySQL, and PostgreSQL)
  - Analyzed risk and business data and components

ACADEMIC QUALIFICATIONS:

- **Leadership Essentials (2020 – ongoing):**
  School of Continuing Studies, University of Toronto, Toronto, Ontario, Canada.
  - The DNA of Top Performers
  - The DNA of Highly Effective Teams

- **Ph.D. in Computer Science, Machine Learning (2014 – 2018) | GPA: 9.7 / 10:**
  School of Electrical Engineering and Computer Science, University of Ottawa, Ontario, Canada.
  - Thesis: "*A Reservoir of Adaptive Algorithms for Online Learning from Evolving Data Streams*"

- **Master of Science in Computer Science, Software Engineering (2011 – 2013) | GPA: 4.0 / 4.0:**
  Faculty of Computer Science and Information Technology, University of Putra, Selangor, Malaysia.
  - Thesis: "*Term Frequency-Information Content for Focused Crawling to Predict Relevant Web Pages*"

- **Bachelor of Science in Computer Engineering - Software (2006 – 2011):**
  Department of Computer Engineering and Information Technology, University of Kashan, Isfahan, Iran.
  - Thesis: "*Optimizing Energy Consumption in Sensor Networks with Dynamic Clustering and Multi-Hop Communications*"

SELECTED PUBLICATIONS:

Journals and Proceedings – (MLJ: 1, ECML: 1, IJCNN: 1, JAMIA: 1):

- Ahmad Pesaranghader, **Ali Pesaranghader***, Stan Matwin, Marina Sokolova, "*deepBioWSD: Effective Deep Neural Word Sense Disambiguation of Biomedical Text Data*", Journal of the American Medical Informatics Association (JAMIA), Oxford Academic, Feb. 2019. [* Equal Contribution with First Author]
- **Ali Pesaranghader**, Herna L. Viktor, Eric Paquet, "*Reservoir of Diverse Adaptive Learners and Stacking Fast Hoeffding Drift Detection Methods for Evolving Data Streams*", Machine Learning Journal (MLJ), Springer, June 2018.
- **Ali Pesaranghader**, Herna L. Viktor, Eric Paquet, "*McDiarmid Drift Detection Methods for Evolving Data Streams*", In Proceedings of the 31st International Joint Conference on Neural Networks (IJCNN 2018), July 2018, Rio de Janeiro, Brazil.
- Ahmad Pesaranghader, **Ali Pesaranghader**, Stan Matwin, Marina Sokolova, "*One Single Deep Bidirectional LSTM Network for Word Sense Disambiguation of Text Data*", In Proceedings of the 31th Canadian Conference on Artificial Intelligence (CAI 2018), May 2018, Toronto, Ontario, Canada.
- **Ali Pesaranghader**, Herna L. Viktor, "*Fast Hoeffding Drift Detection Method for Evolving Data Streams*", In Proceedings of European Conference on Machine Learning and Principles of Knowledge Discovery in Databases (ECML-PKDD 2016), Sep. 2016, Riva Del Garda, Italy.
- **Ali Pesaranghader**, Herna L. Viktor, Eric Paquet, "*A Framework for Classification in Data Streams using Multi-Strategy Learning*", In Proceedings of the 19th International Conference on Discovery Science (DS 2016), Sep. 2016, Bari, Italy. ** Nominated for the Best Paper Award **
- **Ali Pesaranghader**, Norwati Mustapha, Ahmad Pesaranghader, "*Applying Semantic Similarity Measures to Enhance Topic-Specific Web Crawling*", In Proceedings of the 13th International Conference on Intelligent Systems Design and Applications (ISDA 2013), Dec. 2013, Kuala Lumpur, Malaysia.

GRANTS, AWARDS, AND FINANCIAL AIDS:

• **International Doctoral Scholarship:** Approx. C$ 10,000	University of Ottawa	Jun. 2018
• **Deep and Reinforcement Learning Summer School:** C$ 1,000	CIFAR & Vector Institute	May 2018
• **Conference Travel Grant:** C$ 3,000	University of Ottawa	Sep. 2016
• **Ontario Trillium Scholarship (OTS):** C$ 173,332	University of Ottawa	Sep. 2014 – Aug. 2018
• **Research Assistantship/Bursary:** C$ 53,750	University of Ottawa	Sep. 2014 – Aug. 2018
• **Excellence Certificate**	University of Ottawa	Nov. 2014
• **Outstanding Student, Degree Award**	University of Putra	Aug. 2013

SKILLS:

- **Machine/Deep Learning, and Scientific Tools:** PyTorch, Keras, Tensorflow, Scikit-learn, NumPy, and Pandas
- **Programming and Scripting Languages:** Python, Java, C, C#, PHP, Perl, and JavaScript
- **Markup, Style Sheet Languages, and Web Technologies:** HTML, XML, CSS, Bootstrap, jQuery, NodeJS, and Flask
- **Databases:** SQL Server, MySQL, and PostgreSQL

* Familiar with Software Engineering Methodologies, Architecture Designs and Styles, Design Patterns, and Quality Assurance

CERTIFICATES:

• **Deep and Reinforcement Learning Summer School**	CIFAR & Vector Institute	Jun. 2018
• **IBM Watson for Cyber Security**	IBM	Apr. 2017
• **Machine Learning**	Coursera	Dec. 2015
• **Data Mining**	University of Waikato	Oct. 2015