



Behrang Mehrparvar

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Since my graduate studies, I have been passionate about the internals of *Deep Neural Networks*. I have been researching on several novel ideas regarding these architectures and also how knowledge from the *brain* can provide us further insights and inspirations to develop new algorithms and architectures. During more than 10 years of research in these fields, I have gained profound insights about deep architectures and have had practical experience working with state-of-the-art *transformer-based architectures* and *generative models* during my career. Currently I have started studying *Brain and Cognitive Sciences* at the University of Amsterdam to further my understanding and research on *Artificial intelligence* and how the brain works from a computational perspective.

CURRENT RESEARCH INTERESTS

- Interbrain synchrony neurofeedback, Synchronicity, Intuition
- Computational cognitive modeling, Analysis of deep neural networks

SOFT SKILLS

- *Intuitive thinking* and *problem solving*, *analytical thinking* and *critical thinking*
- Strong *adaptability*, *teamwork* and *leadership* capabilities
- Passionate about *interdisciplinary research* and *brainstorming* about novel ideas

HARD SKILLS

- More than 10 years of experience with *deep neural networks*, *convolutional neural networks (CNNs)* and *recurrent neural networks (RNNs)*
- Experience with generative models including *transformer-based models* such as *GPT*, *T5*, *BART*, *BERT* and also *generative adversarial networks (GANs)*
- Experience with machine learning libraries such as *Keras*, *TensorFlow*, *PyTorch*, and *scikit-learn* and Python libraries such as *Pandas* and *Numpy*

EDUCATION

University of Amsterdam — *M.Sc. in Brain and Cognitive Sciences*

Sep 2023 - PRESENT, Amsterdam, Netherlands

University of Houston — *Ph.D. in Computer Science*

Sep 2011 - Aug 2017, Houston, USA Grade: 3.80/4.0

Iran University of Science and Technology — *M.Sc. in Computer Engineering (Software)*

Sep 2008 - Jun 2011, Tehran, Iran Grade: 16.68/20.0

RESEARCH EXPERIENCE

Independent research in AI - Nov 2017 - Sep 2023

- Researching on *graph extraction from text* using *transformer based generative models*
- Researched and developed a new architecture for neural networks using *shortcut pathways for grandmother cells*

Pattern Analysis Laboratory - Sep 2012 - Aug 2017

Advisor: Dr. R. Vilalta

- Conducted research on *conceptual domain adaptation using deep learning*
- Conducted research on *community analysis of deep networks*.

Performance and Dependability Engineering Research Laboratory - Sep 2009 - Jun 2011

Advisor: Dr. M. Abdollahi Azgomi

- Researched on *Model checking techniques for SDES descriptions and their implementation in MCGine model checker*.

PUBLICATIONS

- Mehrparvar, Behrang, and Ricardo Vilalta. "*Conceptual Domain Adaptation Using Deep Learning*." *arXiv preprint arXiv:1808.05355* (2018).
- Mehrparvar, Behrang, and Mohammad Abdollahi Azgomi. "*Towards a Multi-Formalism Model Checker Based on SDES Description*." *FCS 2011: proceedings of the 2011 international conference on foundations of computer science (Las Vegas NV, July 18-21, 2011)*. 2011.

INDUSTRY EXPERIENCE

Hamrahe Aval (MCI), Tehran, Iran — Senior Artificial Intelligence Researcher and Developer

Nov 2021 - Aug 2023

- Researched and developed intelligent solutions for *query processing* based on *transformer based generative models* and *reinforcement learning* for search engine
- Researched and developed solutions for *verbose query reduction and expansion* based on *semantic similarity graph*, *semantic factors* and *pseudo-feedback* for search engine
- Developed a novel idea for *two-step fast spell checker* based on *text vectorization*
- Developed *text vectorization algorithm* for documents and terms vectorization and *update cycle* for search engines

Afagh Company, Tehran, Iran — Artificial Intelligence Researcher and Developer

Nov 2017 - Nov 2021

- Researched and developed AI solutions for *web application security evaluation* using *reinforcement learning*, *genetic algorithm* and *generative adversarial networks (GANs)*
- Developed *security evaluation software* using *Python* and *Gym API*

REFERENCES

Available upon request. Previous recommendations available on LinkedIn profile.