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Behrang Mehrparvar

November 2023

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 201

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.