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Behrang Mehrparvar

March 2025

I am passionate about cognitive science and artificial intelligence as a research career. I am very much interested in developing novel ideas, brainstorming, interdisciplinary research, intuitive thinking and fundamental research. I am also very much interested in researching social consciousness, interbrain synchrony, representation of concepts in the brain and AI, associative memories, and developing hybrid systems incorporating human cognition and AI solutions.

As a hobby, I am also interested in contemplating, researching and brainstorming about other topics such as universal consciousness, randomness, synchronicity, quantum physics and theory of mind.

My lifetime goal is to provide scientific solutions for understanding the universal consciousness which leads to global peace and harmony.

CURRENT RESEARCH INTERESTS

- Cognitive modeling, Analysis of deep neural networks, Knowledge representation, Design of hybrid systems between human and AI
- Interbrain synchrony, Synchronicity, Intuition

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***
- Experience with machine learning libraries such as ***Keras***, ***TensorFlow***, ***PyTorch***, and ***scikit-learn*** and Python libraries such as ***Pandas*** and ***Numpy***

EDUCATION

M.Sc. in Brain and Cognitive Sciences - University of Amsterdam

Sep 2023 - Jul 2025 (expected), Amsterdam, Netherlands

Ph.D. in Computer Science - University of Houston

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

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

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

RESEARCH EXPERIENCE

Synaptosearch - Feb 2024 - PRESENT

- Serving as a core member, participating in research and consultancy
- Researching on ***an AI-generated global human language***
- Researching on ***Representational cognitive modeling (RCM) framework***

Vrije University of Amsterdam - Sep 2024 - PRESENT

Advisor: Dr. M. Alimardani

- Researching on ***Interbrain synchrony during collaborative decision making***

Institute for Logic, Language and Computation - Feb 2024 - Jul 2024

Advisor: Dr. S. Pezzelle

- Researched on ***Detecting and translating language ambiguity with multilingual LLMs***

University of Amsterdam - Sep 2023 - PRESENT

- Paper on ***Medical Decision Making for Substance Addicted Patients taking Deep Brain Stimulation***
- Proposal on ***A Gradual Leader-elimination Framework for Interbrain Synchrony Neurofeedback***
- Essay on ***Interaction between Episodic Memory and Information Search for Meaning***

Independent research in AI - Nov 2017 - Sep 2023

- Researched 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***.

TEACHING EXPERIENCE

Department of Computer Science, University of Houston, Houston, US — *Teaching Assistant*

Sep 2011 - Apr 2016

- Advanced Machine Learning, Machine Learning, Artificial Intelligence (Dr. R. Vilalta)
- Introduction to Computer Science I (Dr. N. Rizk)
- Data Structures (Dr. C. Ordonez)

Daneshsar Institute of Higher Education (University of Applied Science and Technology), Tehran, Iran — *Instructor*

Feb 2010 - Sep 2010

- Multimedia and Environments
- Advanced English

PUBLICATIONS

- Behrang Mehrparvar. "***Beyond Predictive Processing: Explaining Mental Continuity Through a Potentia Monistic Framework***." *5th International Conference on Philosophy of Mind. 2025 (accepted)*
- Behrang Mehrparvar, and Sandro Pezzelle. "***Detecting and translating language ambiguity with multilingual LLMs***." *4th Multilingual Representation Learning Workshop. 2024*, https://aclanthology.org/2024.mrl-1.26/
- Behrang Mehrparvar, and Ricardo Vilalta. "***Conceptual Domain Adaptation Using Deep Learning***." *arXiv preprint arXiv:1808.05355 (2018)*. https://arxiv.org/abs/1808.05355
- Behrang Mehrparvar, 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. http://world-comp.org/p2011/FCS3574.pdf

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***

Plunkett Research Ltd., Houston, USA — *Computer Science Intern*

Jun 2012 - Aug 2012

- **Software developer** and **database designer** and generating online reports for different industries.

REFERENCES

Available upon request. Previous recommendations available on LinkedIn profile.