

Kiarash Aghakasiri

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📄 <https://kiarashk76.github.io/>

Education

- 2024 – Now **University of Alberta**, Edmonton, AB, Canada
PhD Supervisor: *Dr. Levi Lelis*
Thesis Option Discovery in Markov Decision Process Environments Using Neuro-Symbolic Languages for Efficient Decision-Making
- 2019 – 2022 **University of Alberta**, Edmonton, AB, Canada
MSc Supervisor: *Dr. Martin Müller*
Cum. GPA 4.0/4.0
Thesis Monte Carlo Tree Search in the Presence of Model Uncertainty. [PDF]
- 2015 – 2019 **Iran University of Science and Technology**, Tehran, Iran
BSc Supervisor: *Dr. Nasser Mozayani & Dr. Sauleh Eetemadi*
Cum. GPA 3.87/4.0 (17.78/20)
Thesis Image Captioning using Attention Mechanism for Farsi Language. [PDF]

Publications

- AAAI 2024 Farnaz Kohankhaki*, **Kiarash Aghakasiri***, Hongming Zhang, Ting-Han Wei, Chao Gao, and Martin Müller. Monte Carlo Tree Search in the Presence of Transition Uncertainty. [PDF]
- ICASSP 2024 Bahador Rashidi, **Kiarash Aghakasiri**, Chao Gao, Shuting Zhang, Yue Zhang, Ying Liu, and Fengyu Sun. A Multi-Scale Objective Function for Camera Color Correction. [PDF]
- DATE 2024 Bahador Rashidi, Shan Lu, **Kiarash Aghakasiri**, Chao Gao, Fred Xuefei Han, Zhisheng Wang, Laiyuan Gong and Fengyu Sun. CASCO: Cascaded Co-Optimization for Holistic Neural Network Acceleration. [PDF]
- J. Psycholin-
guist. Res.
2021 Fatemeh Karimkhani, Hossein Rahmani, Arezoo Zare, Raana Saheb Nassagh, and **Kiarash Aghakasiri**. Tarvajeh: Word Association Norms for Persian Words. [PDF]

Patent

- 2023 Bahador Rashidi, **Kiarash Aghakasiri**, Chao Gao, Shuting Zhang, Yue Zhang, and Ying Liu. A Multi-Scale Objective Function for Camera Color Correction.

Work Experience

- 2022 – 2023 **Huawei Co**, *Support Researcher*, Edmonton, AB, Canada.
- Applied genetics algorithms (e.g. NSGAI), Reinforcement Learning methods (e.g. PPO), and Bayesian Optimization methods (e.g. MORBO) on the ISP tuning task, more specifically Color Correction for phone cameras. (*Collaborators: Bahador Rashidi and Kerrick Johnstonsbaugh*)(*Supervisor: Chao Gao*)
 - Developed a new color metric, Ψ , to account for the inconsistencies in the current state-of-the-art metric, ΔE . (*Collaborators: Bahador Rashidi*)(*Supervisor: Chao Gao*)
 - Developed Fusion-Aware Hardware/Software Co-Optimization Search method which showed 10% improvement over the previous method. (*Collaborators: Bahador Rashidi*)(*Supervisor: Chao Gao*)
 - Applied Genetic Monte Carlo Tree Search (GMCTS), a novel method, on the Compiler Optimization task (CompilerGym). (*Collaborators: Zeyi Wang*) (*Supervisor: Chao Gao*)
- 2021 – 2021 **Huawei Co**, *Support Researcher Intern*, Edmonton, AB, Canada.
- Developed a new cost model for the Halide Tensor Optimization problem and using heteroscedastic regression to capture model uncertainty. (*Supervisor: Chao Gao*)

2019 – 2022 **University of Alberta**, *Research Assistant*, Edmonton, AB, Canada.

- Designed and developed two new methods, UA-MCTS and DQ-MCTS, to overcome model uncertainty in imperfect domains. (*Collaborators: Farnaz Kohankhaki and Ting Han Wei*) (*Supervisor: Dr. Martin Müller*)
- Applied the proposed methods on Mini-Atari environment and empirically showed their efficiency by comparing against MCTS.

Teaching Experience

Teaching Assistant at University of Alberta

Introduction to the Foundations of Computation I (2019, 2020, 2024)

Basics of Machine Learning (2020, 2021)

Teaching Assistant at Iran University of Science and Technology

Computational Intelligence (2019)

Natural Language Processing (2019)

Introduction to Artificial Intelligence (2018)

Theory of Computational and Automata (2017)

Foundation of Computer and Programming (2016)

Other Academic Projects

- 2020 Heteroscedastic Regression to Identify Model Bias. [\[PDF\]](#) (Instructed by Dr. White)
- 2020 Studying Sensitivity and Performance of TD(λ). [\[PDF\]](#) (Instructed by Dr. Sutton)
- 2019 Named Entity Recognition Performance on Out of Vocabulary Words. [\[PDF\]](#) (Instructed by Dr. Mou)
- 2019 Applying Variance Reduction Methods to Policy Evaluation for Off-Policy Setting. [\[PDF\]](#) (Instructed by Dr. White)
- 2018 Reducing DQN's convergence time with Transfer Learning from different ATARI environments using Variational Auto Encoders. (Instructed by Dr. Mozayani)
- 2017 Fraud Detection on German Bank Dataset. (Instructed by Dr. Rahmani)

Skills

Programming Python, C++, C, Pascal, Matlab

NN Tools Pytorch, TensorFlow, Numpy, Keras, OpenCV, Scikit-Learn

Web BeautifulSoup, Selenium, Scrapy, Twint

System Tools PThreads, NachOS

Data Mining SPSS (Clementine)

Hardware Xilinx ISE, AVR Studio, Code Vision AVR, Logisim

Language Farsi and English

Honors & Awards

- 2019 Graduated as the 2nd top student (BSc) among 64 from the department of Computer Engineering at Iran University of Science and Technology
- 2017 Achieved 12nd place among 16621 in 18th exhibition of Research, Technology Achievements, and Techmart
- 2017 & 2016 Awarded top student of the year from the department of Computer Engineering at Iran University of Science and Technology
- 2015 Ranked 1170 among 181000 contestants at the National Graduate School Entrance Examination.
- Since 2010 Member of National Organization for Development of Exceptional Talent (NODET)