Mahdi Dehshiri

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Education

University of Tehran *Tehran, Iran*

MSc in Electrical and Biomedical Engineering *2021 - Current*

- GPA: 18.89/20

K. N. Toosi University of Technology *Tehran, Iran*

BSc in Electrical Engineering - Control Engineering *2016 - 2021*

- GPA: 16.25/20 (2016 - 2021) & 17.69/20 (2018 - 2021)

Research Interests

- **Causal structure learning, Causal inference, Representation learning, Trustworthy ML, Identifiability.**

Publications

Brain effective connectome based on fMRI and DTI data: Bayesian causal learning and assessment

Abdolmahdi Bagheri, **Mahdi Dehshiri**, Yamin Bagheri, Alireza Akhondi-Asl, Babak Nadjar Araabi

Plos one 18.8 (2023) e0289406. Public Library of Science San Francisco, CA USA, 2023

Research Experience

Computational Modeling and Machine Learning Lab. at University of Tehran *Tehran , Iran*

Research Assistant *2022 - Present*

- Solid theoretical background with hands-on experience on Identifiability and causal representation learning methods.
- Research, Implementation, and development on Causal Structure Learning methods.
- Research and Implementation of causality inspired domain generalization methods.

Advanced Robotics and Automated Systems (ARAS) at K. N. Toosi University of Technology *Tehran , Iran*

Research Assistant *2021 - 2022*

- Sales Prediction of Cluna stores products using Random Forest and graphical user interface design for the program.

Advanced Process Automation and Control (APAC) at K. N. Toosi University of Technology *Tehran , Iran*

Research Assistant *2018 - 2020*

- Alarm Management using Bidirectional LSTM for VS.94 Turbine.

Teaching Experience

Causal Inference and Learning *University of Tehran*

Lead Teacher Assistant *2024*

Upcoming Teaching Experience

Deep Generative Models *University of Tehran*

Teacher Assistant *2023*

Designing-Assessing Homework & Exam for Causality and PGM section

System Identification *University of Tehran*

Teacher Assistant *2022*

Homework assessment

Honores

- Among the top 2% of Iranian National B.Sc. entrance exam among 160,000 participants.
- Among the top 15% of Electrical Engineering Students at K. N. Toosi University, Tehran, Iran - 2021.
- Among the top 10% of Electrical and Biomedical Engineering Students at Tehran University - 2023.

Selected Courses

Graduate Courses

- Statistical Machine Learning - 19.7/20
- Machine Learning - 19.5/20
- Deep Learning & PGM - 18/20
- Statistical Inference - 20/20
- Stochastic Processes - 16.3/20
- 6.S091-causality- Informal Course Study

Under-Graduate Courses

- Fundamentals of Computer Vision - 20/20
- Fundamentals of Intelligent systems - 18.8/20
- Physiology and Anatomy - 19/20
- Linear Algebra - 17.5/20

Selected Projects

Causal structure learning

- Brain effective connectome based on fMRI and DTI data using GOLEM & FGES(Tetrad-Java,py-causal), TensorFlow)(code).
- Causal Discovery in the presence of Prior Information using DAGMA(numpy) (code).

Causal represantion learning

- Classification of colored-MNIST Dataset using SCCL(Supervised Casual Contrastive Learning)(PyTorch)(code).
- Implementation of NF-iVAE(PyTorch)(code).

Statistical machine learning(course)

- Supervised Contrastive Learning & Dirichlet Process Mixture model on 102-Flowers Data(PyTorch) (code).
- Interpretability and Privacy on 102-Flowers Data(PyTorch)(code).
- Open-Set Recognition of 102-Flowers Data(PyTorch)(code).

Other courses projects

- Sensitivity Analysis and Design of Alarm System Based on Delay Timer Considering Measurement Errors.
- Classification of Names and IDs on Handwritten Pages using Image-Processing & Deep CNN.
- Classification and Clustering of Music Genres.

Skills

Programming	**Python**(PyTorch, TensorFlow, Lightgbm, NumPy, Pandas, Matplotlib, Tkinter, PyInstaller, etc.)**, R**(dply, tidyr, ggplot2, etc.)**, C, Matlab**
Miscellaneous	**Linux, LaTeX(Overleaf),Simulink, Git, Arduino, Microsoft Office**

Languages

English	93 TOEFL (Reading: 25, Listening: 27, Speaking: 21, Writing: 20)
Farsi	Native proficiency

References

- Dr. Babak Nadjar Araabi, Professor at School of Electrical and Computer Engineering, University of Tehran
  Email: araabi@ut.ac.ir
- Dr. Hamidreza Taghirad, Professor at Faculty of Electrical Engineering, K. N. Toosi University of Technology
  Email: Taghirad@kntu.ac.ir
- Dr. Mostafa Tavassolipour, Assistant Professor at School of Electrical and Computer Engineering, University of Tehran
  Email: tavassolipour@ut.ac.ir
- Dr. Abdolmahdi Bagheri, Researcher at School of Electrical and Computer Engineering, University of Tehran
  Email: abdolmahdibagheri@ut.ac.ir
- Dr. Seyed Ahmad Khallilpour, Post doctoral Researcher at Advanced Robotics and Automated Systems Lab, Faculty of Electrical and Computer Engineering, K.N. Toosi
  Email: khalilpour@alumni.kntu.ac.ir