Moein Khajehnejad

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moein-khajehnejad • Moein-Khajehnejad

Bio

I am a recent PhD graduate in Data Science with more than **8 years** of experience in Machine Learning and Artificial Intelligence research among prestigious teams in multiple of the world's **top 50 research institutes** in **6 different countries**. Passionate about theoretical computer science, I study populations and time series data using machine learning and game theory. I have made significant contributions to the state-of-the-art methods in analysis of collective behaviour and decision-making in multi-agent systems.

Education

Monash University — **Melbourne**
Ph.D., Department of Data Science and AI — *2019 - 2023*

Sharif University of Technology — **Tehran**
B.Sc., Computer Sciences & Electrical Engineering — *2011 - 2016*

Working Experience

Cortical Labs pty ltd — **Melbourne**
Data Scientist - Part Time — *Jan 2022 – Current*
- **Achievement:** Developed deep RL algorithms and compared sample efficiency with live biological neurons.
- **Duties:** Building strong working relationships with international teams, Liaising with internal stakeholder, Communicating with non-technical audience, Working within cross-disciplinary teams.
- **Tools:** PyTorch, TensorFlow, Keras, Scipy, Matplotlib, scikit-learn, holoviews, Pandas, Jupyter Lab, GitLab

Max Planck Institute for Software Systems (MPI-SWS) — **Saarbrücken**
Machine Learning Researcher — *Jan 2019 – May 2019*
- **Achievement:** Mathematically solved optimal decision-making problem under strategic behaviour using real & synthetic credit card data.
- **Duties:** Guiding the project, Working closely with cross-functional teams, Designing data-driven solutions.
- **Research Areas:** Fairness, Optimal Decision-Making, Machine Teaching

statNLP @ SUTD-MIT — **Singapore**
Machine Learning Intern — *Jul 2016 – Oct 2016*
- **Achievement:** Developed a novel approach for an efficient low-dimensional network embedding.
- **Duties:** Managing research project, Using new and creative techniques to modify previous solutions.
- **Research Areas:** Network Embedding, Graph Representation Learning

LSIR @ EPFL — **Lausanne**
Information Systems Research Intern — *Jan 2016 – May 2016*
- **Achievement:** Significantly modified the accuracy of several state-of-the-art deep learning algorithms in word embedding.
- **Duties:** Developing scalable machine learning techniques to drive business outcomes for a giant food-industry stakeholder.
- **Research Areas:** Convex Optimization, Natural Language Processing, Word Embedding

SyMLab @ HKUST — **Hong Kong**
Machine Learning Intern — *Jul 2015 – Oct 2015*
- **Achievement:** Introduced a novel measure for mean first traverse distance on complex networks.
- **Duties:** Supporting the team in mathematical solutions.
- **Research Areas:** Network Science, Graph Representation Learning

Graduate Teaching Experience

Monash University

Head TA *for Multi agent systems and collective behaviour* — *Semester 2 – 2022*
- **Duties:** Supervising a team of 4 graduate teaching assistants, Liaising with course coordinators, Advising 40 graduate students, Preparing course and exam materials, Organizing teaching resources.

TA *for Computational Modelling and Simulation* — *Semester 1 – 2020 & 2021*

University of Melborune
TA *for Real and Artificial Neural Networks* *Semester 2 – 2020*

Technical skills

- **Dynamically-typed Programming:** Python, MATLAB, R
- **Symbolic Programming:** Mathematica
- **Data Visualization:** Wolfram Alpha, Tableau, MuxViz, Gephi
- **Markup Programming:** LaTeX, HTML

Presentations and Speeches

- Oct 2022: **University of Oxford**
- Oct 2022: **University College London (UCL)**
- July 2022: **Spotlight at ICML**
- July 2021: **Workshop on Socially Responsible Machine Learning - ICML**
- July 2020: **Machine Learning Summer School (MLSS)**
- Dec 2019: **Human-Centric Machine Learning (HCML) Workshop - NeurIPS**

Honors and Awards

- Top 20 reviewers award, **Learning on Graphs (LoG) Conference 2022**.
- Travel award, **ICML 2022**, Baltimore, United States.
- Among 16 electess globally to **NETHIKE 2022** Summer School by ***ETH*** Zürich, Switzerland.
- Among 30 electees globally to **Complex networks: theory, methods, and apps** Spring School, Italy.
- Travel award, **NetSci-X 2022**, Porto, Portugal.
- Accepted to **Machine Learning Summer School (MLSS 2020)**, Germany: acceptance rate of 13.8%.
- Travel award, **NeurIPS 2019**, Vancouver, Canada.
- Ranked among top **0.05%** in the Iranian nation-wide university entrance exam of Maths and Physics.

Publications

A full list of my publications is on my Google Scholar. My **5 recent** publications in flagship AI conferences/journals:

- **M. Khajehnejad**, F. Habibollahi, R. Nock, E. Arabzadeh, P. Dayan, and A. Dezfouli, *"Neural Network Poisson Models for Behavioural and Neural Spike Train Data"*. In Proc. of the **39th International Conference on Machine Learning (ICML 2022), Spotlight paper**.[link] (**Acceptance Rate = 21.9**%)

- A. Khajehnejad, **M. Khajehnejad**, M. Babaei, K. P. Gummadi, A. Weller, B. Mirzasoleiman *"CrossWalk: Fairness-enhanced Node Representation Learning"*. In Proc. of the **AAAI Conference on Artificial Intelligence 2022, (AAAI-22)**.[link] (**Acceptance Rate = 15**%)

- **M. Khajehnejad**, A. A. Rezaei, M. Babaei, J. Hoffmann, M. Jalili, A. Weller *"Adversarial Graph Embeddings for Fair Influence Maximization over Social Networks"*. In Proc. of the **29th International Joint Conference on Artificial Intelligence 2020 (IJCAI'20)**.[link] (**Acceptance Rate = 12.6**%)

- **M. Khajehnejad**, S. Tsirtsis, B. Tabibian, A. Singla, B. Schölkopf, M. Gomez-Rodriguez *"Optimal Decision Making Under Strategic Behavior"*. In Proc. of the **33rd Conference on Neural Information Processing Systems (NeurIPS 2019: Human-Centric Machine Learning workshop)**.[link]

- **M. Khajehnejad**, F. Habibollahi, A. Gaurav, B. J. Kagan, *"Biological Neurons vs Deep Reinforcement Learning: Sample efficiency in a simulated game-world"*. In Proc. of the **36th Conference on Neural Information Processing Systems (NeurIPS 2022: DeepRL, MemARI ,and LMRL)** and accepted in the journal of **Nature Machine Intelligence**. [link]