


MAHAN FATHI

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HIGHLIGHTS

- **3+ years** of academic experience in development of research infrastructure and doing actual research in **Reinforcement Learning** and **Optimal Control of Dynamical/Robotic Systems**, on massive accelerators at scale
- **3+ years** of work experience as **Software Engineer**, **Data Scientist**, and **Team Leader** (e.g., user-centric ML, high-throughput streaming microservices, gigantic image datasets)
- **Proud of switching gears** – pun intended: coming from a Mechanical Engineering background, I decided to not settle for anything less than following my true passion, robotics. RL just happened to be a recently popularized means to this end.

SELECTED EXPERIENCES

Google Brain ◊ *Student Researcher (SR) – Deep RL* Montréal, QC ♦ Aug. 2022 – Present

- Member of MonRL team, led by **Marc G. Bellemare**
- Supervised by **Ross Goroshin**
- Working on the intersection of Sequence Modeling and Reinforcement Learning, in both online and offline settings

Mila: MTL. Inst. for Learning Algs. ◊ *MSc Student* Montréal, QC ♦ Jan. 2021 – Present

- Advised by **Pierre-Luc Bacon** at Université de Montréal
- Research Areas: Sample-efficient Reinforcement Learning, Energy-based Policy/Imitation Networks, Continuous Sequence Models (HiPPO-inspired) in RL and Control

Polytechnique Montréal ◊ *Teaching Assistant* Montréal, QC ♦ Sep. 2021 – Jan. 2022

- Teaching Assistant for INF8953DE – Reinforcement Learning, by **Sarath Chandar**
- Responsible for designing the majority of the assignments

Aalto University ◊ *Research Assistant* Espoo, Finland ♦ Jun. – Sep. 2019

- Supervised by **Perttu Härmäläinen**
- Developed a framework that offered *MuJoCo* dynamics step functions as differentiable *PyTorch* operations
- Controlled systems as complicated as *Humanoid* using analytic policy gradients

CafeBazaar ◊ *Senior SWE/DS and TL* Tehran, Iran ♦ Oct. 2018 – Sep. 2019

- Worked at **Balad**, which is now the biggest domestic map and navigation application of Iran (joined at userbase of 100k and left when at ~6M)
- Technical Leadership and Product Management of Data Infrastructure, a team of 7 Data Scientists, and ETA&Traffic, a team of 4 Software Engineers and 3 Data Scientists
- As a Computer Vision Scientist I was concerned with information extraction from street and aerial imagery
- As a Software Engineer I single-handedly developed the first traffic logging&predicting service of Balad

TAPSI ◊ *Backend Developer* Tehran, Iran ♦ Feb. – Oct. 2018

- Among the biggest Iranian tech companies, TAPSI is a ride-hailing platform with millions of monthly active users.
- Improved finished rides rate by 3% in a self-directed project, and rewrote many legacy services including Location and Dispatch from scratch

HONORS & AWARDS

Bourse D'excellence DIRO & MSc Tuition Exemption Scholarship (Bourse C) 2022

Fully Funded Admission to Mila/UdeM, ETH, UBC, McGill, Aalto 2019

Awarded membership to the National Elites Foundation 2013

Silver Medalist at 25th National Physics Olympiad 2012

EDUCATION

M.Sc. in Computer Science Jan'21 – Present

Université de Montréal & Mila

B.Sc. in Mechanical Engineering Sep'13 – Jul'17

Sharif University of Technology

NODET: High School Sep'09 – Jun'13

National Organization for Development of Exceptional Talents, Mathematics and Physics

TECHNOLOGIES

Auto-diff & RL Frameworks

- JAX, TensorFlow, PyTorch
- Flax, Haiku, RLax, trajax, JAXopt, etc
- BRAX, Dopamine, Acme
- XM, Google Infrastructure


Everything Data

- Apache Spark, SparkSQL, Apache Kafka
- Apache Flink, Apache Beam
- HDFS, YARN
- Redis, MongoDB
- PostgreSQL, MySQL

Main Programming Languages

• C/C++ • Python • JS • Java • Lua • SQL

Miscellaneous

- 10+ years experience with Linux systems
- Emacs, Arch Linux
-  English, Farsi

RESEARCH INTERESTS

- Deep Reinforcement & Representation Learning
- Reinforcement Learning as Supervised Learning
- Sequence Modeling, Eligibility Traces, And Credit Assignment
- Energy-based Models & Behavior/Option Mixing

SELECTED PROJECTS

HJxB

iLQR-MuJoCo

NxDP

Sample-based Motion Planning for Ballbot

TrajOpt of Passive Walker

LQR-RRT*

Points of Interest Collection

OBJET

Model-based Policy Gradients

Unsupervised Object Detection

Learning to Drive in 2 Days

* I am a strong believer in the one-page resume. Full experience summary is available in LinkedIn