

## RESEARCH INTERESTS

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- **Sequential Decision Making**
- **Reinforcement Learning**
- **Foundation Models**

## EDUCATION

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### **Boston University**

PhD - Computer Engineering

Boston, MA, USA

2023–current

### **Sharif University of Technology**

Bachelor of Science

Tehran, Iran

2018–2023

- Major: Applied Mathematics
- Minor: Computer Science

## RESEARCH EXPERIENCE

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### **DeLF: Designing Learning Environments with Foundation Models**

RL+LLM Workshop at AAAI 2024 Conference, Vancouver, Canada

Boston, MA

Fall 2023

- We propose a method named DeLF: Designing Learning Environments with Foundation Models, that employs Large Language Models to design and codify the user's intended learning environment. We show in experiments that DeLF can obtain executable environment codes for the corresponding RL problems.
- Link to paper preprint [🔗](#)

### **Reward Design of Virtual Biomechanical Model for Trackpad Application**

Research Internship at Aalto University

Espoo, Finland

August 2023

- The ultimate goal of this project is to define rich behavioral data for training from an artificial agent with a human biomechanical model. We used a simulated skeleton named user-in-the-box, which is a Mujoco-based biomechanical model. We designed and added the scene for the trackpad application in the simulator, and proposed the reward function that successfully leads to the intended behavior.
- Link to Trackpad Application video demos [🔗](#)
- Link to project presentaion slides [🔗](#)

### **A Reinforcement Learning Approach to Lightning Network Fee Policy**

Bachelor Thesis at Sharif University of Technology

Tehran, Iran

Fall 2021–Fall 2022

- Payment Channel Networks are decentralized transaction mechanisms among a large number of users. We proposed a dynamic fee-setting environment that can suggest a profitable fee policy for payment channel owners. This work facilitates the use of RL in novel crypto-economic applications.
- Link to paper preprint [🔗](#)



- Link to GitHub repo 

## Hierarchical Potential-based Reward Shaping for highway environment

Vienna, Austria

Research Internship at Vienna University of Technology (TU Wien)

Summer 2022

- *HPRS* is a hierarchical, potential-based reward-shaping approach that tries to automate the reward definition by formalizing the task as a set of safety, target, and comfort requirements using temporal logic. In this project, we implemented this method for HighwayEnv, an RL environment for decision-making in autonomous driving.
- Link to HPRS GitHub repo 
- Link to HPRS paper preprint 

## AWARDS

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- Srinivasa Krishnamurthy PhD Fellowship Fall 2023  
- College of Engineering, Boston University
- Boston University Distinguished Computer Engineering Fellowship Fall 2023  
- Department of Electrical and Computer Engineering, Boston University
- Third place in !Optimizer Competition of SOAL Optimization Lab  Summer 2021  
- Department of Mathematical Sciences, Sharif University of Technology

## RELEVANT COURSES

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|----------------------------|-----------------------------|
| 1. Algorithmic Game Theory | 1. Advanced Linear Algebra  |
| 2. Automata Theory         | 2. Convex Optimization      |
| 3. Machine Learning Theory | 3. Semidefinite Programming |
| 4. Advanced Programming    | 4. Linear Programming       |
| 5. Data Structures         | 5. Stochastic Processes     |
| 6. Cyber-Physical Systems  | 6. Bayesian Statistics      |

## SKILLS

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### • Programming:

1. Julia
2. Python
3. Java
4. C++
5. Matlab

### • Optimization:

1. JuMP
2. MathOptInterface

### • ML:

1. PyTorch
2. TensorFlow
3. Keras

### • Web:

1. HTML/CSS (Basic)

### • Tools:

1. LaTeX

### • Techs:

1. Git

## LANGUAGES

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- **English:** Proficient (TOEFL iBT: 107/120)
- **Persian:** Native

## REFERENCES

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References are available upon request.