Education

⊠ setarehc@cs.ubc.ca

2020 - Present	Ph.D. in Computer Science Expected graduation: November 2025 Machine Learning and Reinforcement Learning <i>Supervisor</i> : Michiel van de Panne	University of British Columbia
2017 - 2019	M.Sc. in Computer Science Supervisors: James Little and Leonid Sigal	University of British Columbia
	Thesis: "Team LSTM: Player Trajectory Prediction in Basketba Networks".	ll Games using Graph-based LSTM
2012 - 2017	B.Sc. in Computer Engineering Supervisor: Seyed Abolfazl Motahari	Sharif University of Technology
	Final Project: "Finding Communities in Complex Genetic Netwo GPA: 17.86/20.	orks "
2008 - 2012	Diploma in Mathematics and Physics Discipline GPA: 19.84/20.	Farzanegan High School

PUBLICATIONS

- Guy Tevet, Sigal Raab, Setareh Cohan, Daniele Reda, Zhengyi Luo, Xue Bin Peng, Amit Haim Bermano, Michiel van de Panne. "CLoSD: Closing the Loop between Simulation and Diffusion for multi-task character control." ICLR, 2025 [Arxiv] [Project Page [Code]
- Saeid Naderiparizi*, Xiaoxuan Liang*, Setareh Cohan, Berend Zwartsenberg, Frank Wood. "Don't be so Negative! Score-based Generative Modeling with Oracle-assisted Guidance." ICML, 2024 [PDF] [Code]
- Setareh Cohan, Guy Tevet, Daniele Reda, Xue Bin Peng, Michiel van de Panne. "Flexible Motion In-betweening with Diffusion Models." SIGGRAPH, 2024 [Arxiv] [Project Page] [Code]
- Setareh Cohan, Nam Hee Kim, David Rolnick, Michiel van de Panne. "Understanding the Evolution of Linear Regions in Deep Reinforcement Learning." NeurIPS, 2022 [Arxiv] [Project Page] [Code]

PROJECT HIGHLIGHTS

Diffusion Models for Motion Synthesis and Editing

Ongoing projects exploring the capabilities of probabilistic diffusion models for human motion synthesis, completion and composition.

Team LSTM: Player Trajectory Prediction in Basketball Games using **Graph-based LSTM Networks**

We predict the future positions of basketball players based on their past positions. Following the Social LSTM model, we treat trajectory prediction as a sequence prediction task and exploit LSTMs to solve the problem. To better model player interactions and structure of the game, we propose a new graph-based pooling structure for the LSTM networks. Our novel pooling mechanism is based on Relation Networks and improves the accuracy of our predictions. Our model outperforms Social-LSTM model in this task. [Code]

A Bayesian Approach to Visual Question Answering

Final project of *Probabilistic Programming* course.

Having generative models for VQA tasks such as CLEVR, we perform Bayesian inference to find the latent variables of questions and images independently. Now, we have a much simpler task: answering the question based on low dimensional and interpretable latent variables. Our model achieves SOTA performance while having better generalization abilities. [PDF]

BOREALIS AI

RegNet: Regularizing Deep Networks

Final project of Multimodal Learning with Vision, Language and Sound course.

We design a novel method to regularize CNNs based on class similarities to improve classification accuracy for rare classes; classes with few training samples. The idea: to teach the model to borrow the general features of a rare class from relevant classes and learn only the distinctive features specific to the rare class. For this, we add a prior to the loss function that encouraging weight vectors corresponding to visually similar classes, to be similar. Our experiments demonstrate some increase in classification accuracy using the hierarchical variation of our method. [PDF] [Code]

Learning to Ride a Bike

Final project of Computer Animation course.

We implement a simulator for bicycle motion and used the Fitted Value Iteration algorithm for keeping the bike balanced while it moves at a constant speed. [PDF] [Code]

EXPERIENCE

2020 May-Aug	020	Research Intern , Supervisor: Lili Meng	Borealis
	Investigated the advantages of integrating probabilistic prediction and selective prediction	ion (or	
		prediction with reject option) for regression tasks. Implemented SelectiveNet (Geifman	et al.,
		ICML2019), and altered the prediction modules to probabilistic prediction. Designed a	nd executed
		numerical experiments on large computer clusters for classification and regression tasks	. [Code]

Software Developer Intern, Supervisor: Hossein Asadi Sharif University of Technology (DSN LABORATORY)

I joined a team to develop an application for data storage performance testing. I implemented a simulator in C++ that performed certain tasks our target hardware did, with the same input and output. This simulator was later used to test the performance of our data storage systems.

TEACHING

2016

July-Sep

Winter 2019	Teaching Assistant, CPSC 340/440: Machine Learning	
Winter 2020	Responsibilities: Holding tutorial sessions (Topic e.g.s: regularization, kernel trick, MAP estimation, density estimation, Monte Carlo methods, graphical models, and deep NNs) and weekly office hours, designing quiz/exam/assignment questions, and grading.	
Fall 2019 Summer 2019 Winter 2018 Fall 2017	Teaching Assistant , CPSC 320: Intermediate Algorithm Design and Analysis Responsibilities: Holding tutorial sessions (Topic e.g.s: dynamic programming, reductions and NP-completeness), and weekly office hours, designing quizzes, and grading.	
	Honors and Awards	
2020-Present	Recipient of President's Academic Excellence Initiative PhD Award	
2020-Present	Recipient of Faculty of Science PhD Tuition Award	
2017-2019	Recipient of International Tuition Award from the University of British Columbia	
2017	Ranked 1st in cumulative GPA among students majoring in Information Technology Engineering, class of 2017, Sharif University of Technology.	
	Academic Activities	
	Reviewer at NeurIPS, ICLR, ICML, AAAI, SIGGRAPH	
Fall 2019	Student Volunteer, 32nd Conference on Neural Information Processing Systems (NeurIPS) Vancouver, Canada	
Summer 2019	Participant of CIFAR Deep Learning and Reinforcement Learning Summer School (DLRLSS) Edmonton, Canada	
Fall 2014	Participant of ACM-ICPC Regional Contest Tehran, Iran	
	Skills	

Programming Languages: Python (preferred), C/C++, Java, Matlab, Julia, HTML Frameworks/Tools: Pytorch, Tensorflow, Blender, Pyprob