Mohammadhossein BAHARI

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EDUCATION

Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland *2018-now*

PhD in Electrical Engineering
• Thesis: Vehicle behavior prediction for self-driving cars
• Advisor: Alexandre Alahi

Sharif University of Technology, Iran *2016-2018*

M.S in Electrical Engineering, GPA: 19.24/20
• Thesis: simulation and implementation of baseband processing blocks of a Massive-MIMO system based on 5G standard
• Advisor: Mahdi Shabany

Sharif University of Technology, Iran *2012-2016*

B.S in Electrical Engineering, GPA: 17.56/20
• Thesis: Booting an embedded linux OS on a ZYNQ Board

PUBLICATIONS

• "Vehicle trajectory prediction works, but not everywhere", **MH.Bahari**, S.Saadatnejad, A.Rahimi, M.Shaverdi, S.Dezfooli, A.Alahi, *arXiv, 2021,* link.

• "Causal Imitative Model for Autonomous Driving", M.Samsami, **MH.Bahari**, S.Kaleybar, A.Alahi, *arXiv, 2021,* link.

• "Injecting Knowledge in Data-driven Vehicle Trajectory Predictors", **MH.Bahari**, I.Nejjar, A.Alahi, *Transportation Research part C (TRC) , 2021*, link.

• "Are socially-aware trajectory prediction models really socially-aware?", **MH.Bahari**, S.Saadatnejad, P.Khorsandi, M.Saneian, S. Dezfooli, A.Alahi, *arXiv, 2021,* link.

• "SVG-Net: An SVG-based Trajectory Prediction Model", **MH.Bahari**, V.Zehtab, S.Ayromlou, MS.Khorasani, S.Saadatnejad, A.Alahi, *arXiv, 2021,* link.

• "Modified Joint Channel-and-Data Estimation for One-Bit Massive MIMO", **MH.Bahari**, SR.Rasoulinezhad, M.Amiri, M.Shabany, SA.Nezamalhosseini, *IEEE International Symposium on Circuits and Systems (ISCAS) 2021.*

• "Feed-forwards meet recurrent networks in vehicle trajectory prediction", **MH.Bahari**, A.Alahi, *Swiss Transport Research Conference*, 2019

RESEARCH EXPERIENCE

Vita lab, EPFL *2018-Now*

We study vehicle behavior prediction for self-driving cars using deep learning. More specifically, we are interested in generalizable solutions achieved by building causal models, adding knowledge to them, and assess them by adversarial attack.

Massive MIMO group, Sharif university *2016-2018*

Studied efficient design and hardware implementation of joint channel-and-data estimation in massive-MIMO systems with one-bit ADCs.

SARVNET Co. *Summer 2014*

Modified the NetFPGA project for a 10GB router.

Honors and Awards

- Awarded Marie Skłodowska-Curie Fellowship by the European Union for the doctoral degree, 2018-2022
- Achieving highest GPA among Electrical engineering master students, 2018
- Ranking 5th among almost 25,000 applicants in the nation-wide Entrance Exam for MSc degree, Iran, 2015
- Ranking 54th among almost 300,000 applicants in the nation-wide Entrance Exam for BSc degree, Iran, 2011

Talks

- Workshop on "Vehicle Behavior Prediction in Self-driving Cars from an Industrial Perspective", Winter Webinar Series (WSS), Iran, Dec 2020

Research Mentoring

Internships

Summers 2020 & 2021

- Ahmad Rahimi, Mohammad shaverdi, *adversarial scene generation for vehicle trajectory prediction*
- Ahmad Salimi, Sepehr Ilami, *Unbiased causal trajectory prediction*
- Mohammadreza Samsami, *Causal learning for autonomous planning*
- Pedram Khorsandi, Mohammad Saneian, *adversarial examples in prediction models*
- Vahid Zehtab, Sana Ayramlou, Mohammad Khorasani, *Vector-based representations for trajectory prediction models*
- Hossein Zakernia, Mahdi Nikdan, Out-of-Distribution Generalization for prediction models

Master projects

2019-2021

- Zhecho Mitev, *Continual learning trajectory prediction*
- Mohammadreza Ebrahimi, *Constrained-learning for trajectory prediction*
- Ismail Nejjar, *knowledge-aware safe trajectory prediction*
- Frank Dessimoz, *Overcoming imitation learning challenges in Carla Simulator*

Skills

Programming Python | Pytorch | Matlab | C++ | CUDA | Verilog/VHDL | Git

Languages ***Native:*** Persian ***Fluent:*** English ***Beginner:*** Arabic, French

Other Activities

- Hiking, Reading, Traveling