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

• ”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

Under review works that are not published yet: (Drafts can be made available upon request)

• Modified title: ”Causal imitation learning for self-driving cars”, M.Samsami, **MH.Bahari**, S.Kaleybar, A.Alahi

• Modified title: ”Do vehicle trajectory prediction models really reason over the scene? An adversarial attack evaluation”, **MH.Bahari**, S.Saadatnejad, A.Rahimi, M.Shaverdi, S.Dezfooli, A.Alahi

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 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