

Education

- **Saarland University** Saarbrücken, Germany
Ph.D. Computer Science, Advisor: Prof. Isabel Valera 2021 - Present
 - **Research Interests:** Deep generative modeling, probabilistic modeling for time-series data.
 - ELLIS Ph.D. student, co-advised by Prof. Ole Winther.
- **Bogazici University** Istanbul, Turkey
M.Sc. Computer Engineering, Advisor: Prof. Lale Akarun 2018 - 2021
 - GPA: 3.8/4
- **Bogazici University** Istanbul, Turkey
B.Sc. Physics 2013 - 2018
 - **Accomplishments:**
 - * Ranked as 3rd in the class of 2018 with GPA:3.47/4
 - * Recipient of Fulbright Ph.D. Grant (2018)
 - * Turkish Research Council Undergraduate Scholarship (\$20k) (2014-2018)
 - * Awarded with Bogazici University Honor Certificate

Research Experience

- **Saarland University** Saarbrücken, Germany
Research for Ph.D. Thesis Present
 - Working on interpretable and robust generative models for multivariate time-series data.
 - Manuscripts:
 - * “Variational Mixture of HyperGenerators for learning distributions over functions.” (under review)
 - * “Probabilistic Transformers with Spatio-Temporal Attention.” (in progress)
- **Bogazici University** Istanbul, Turkey
Research for M.Sc. Thesis Fall 2020 - Summer 2021
 - Worked with Prof. Lale Akarun and Prof. Ali Taylan Cemgil (currently at DeepMind) on analysis and regularization of deep generative second order ordinary differential equations.
- **Bogazici University** Istanbul, Turkey
Medical and Biological Physics Research Group Fall 2019 - Fall 2020
 - Worked with Prof. Mehmet Burcin Unlu as a graduate research assistant. We focused on building deep learning models for medical physics problems.
- **University of California, Irvine** Irvine, CA
Undergraduate Research Assistant Summer 2017
 - Worked with Prof. Gultekin Gulsen on designing electronic circuits, building laser circuitry for photo-magnetic imaging system and developing a data acquisition pipeline for CT guided molecular fluorescence tomography system by using MATLAB.

Manuscripts

• Publications

- **Koyuncu, B.**, Sanchez-Martin, P., Peis, I., Olmos, P. M., Valera, I. (2023). Variational Mixture of HyperGenerators for Learning Distributions Over Functions. To appear in Fortieth International Conference on Machine Learning (ICML) 2023.
- Parlattan, U., Ozen, M. O., Kecoglu, I., **Koyuncu, B.**, ..., Demirci, U. (2023). Label-Free Identification of Exosomes using Raman Spectroscopy and Machine Learning. Small, 2205519.
- **Koyuncu, B.**, Melek, A., Yilmaz, D., Tuzer, M., Unlu, M. B. (2022). Chemotherapy response prediction with diffuser elapser network. Scientific Reports, 12(1), 1-13.
- **Koyuncu, B.** (2021). Analysis of ODE2VAE with Examples. Fourth Workshop on Machine Learning and the Physical Sciences, NeurIPS. arXiv:2108.04899

Talks & Presentations

- **VaMoH: Inferring distributions over functions** Alicante, Spain
at ELLIS Alicante Unit April 2023
- **Using CNNs to learn dynamics of coupled PDEs** Istanbul, Turkey
at Bogazici University March 2020
- **Utilizing deep learning models to predict chemotherapy response** Istanbul, Turkey
at Kodluyoruz Research February 2020

Selected Projects

- **AI Labs Joint Program**
Assistant Instructor at Inzva Hacker Community Fall 2020
 - Preparation of notebooks for multi-object tracking workshop and guiding discussion sections with Prof. Fatma Güney.
- **Computer Vision**
Supervisor: Prof. Lale Akarun Fall 2019
 - Applications of variational autoencoders in computer vision: A survey of action prediction models.
- **AI Projects Showcase**
Independent Team Project at Inzva Hacker Community Fall 2019
 - Applications of attention based deep learning models on route optimization problems.

Skills

- **Programming languages:** Python, MATLAB, C++, Cython
- **Frameworks:** Pytorch, Keras, Tensorflow, ROOT, Git