Tolga Recep Uçar

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Education

Yıldız Technical University Aug 2020 - Present
Bachelor of Science in Mathematics: GPA: 3.16/4.00 *Istanbul, Turkey*

- Relevant Courses: Linear Algebra, Probability and Statistics, Computer Programming, Operations Research (Decision Theory, Network Analysis, Markov Chains), Linear Programming, Mathematical Analysis, Number Theory, Pure Mathematics, Differential Equations
- Expected Graduation Date: Jun 2024

Experience

Undergraduate Researcher Jun 2022 - Present
STAR Research Program, Yıldız Technical University *Istanbul, Turkey*

- Working on training and latent space dimensionality settings of Sentence Variational Autoencoders and generation and interpolation of sentences, under the supervision of Assoc. Prof. Mehmet Fatih Amasyali

Work (All available on my GitHub page)

Turkish Translation of Interpretable Machine Learning by Christoph Molnar

- Machine learning has great potential for improving products, processes and research. But computers usually do not explain their predictions which is a barrier to the adoption of machine learning. This book is about making machine learning models and their decisions interpretable.

Open-source contribution to PyTorch's Captum

- Improving the "Algorithm Comparison Matrix" to be more researcher/developer friendly and implementing rate distortion explanation (RDE) method that interprets the predictions of vision models.

Research Interests

- Representation and Transfer Learning
- Neural Network Interpretability and Mechanistic Interpretability
- Adversarial examples in CV and NLP

Technical Skills

Languages: Python, R, Java, HTML, CSS
Machine Learning: Pytorch, HuggingFace, Captum, Tensorflow, Scikit-learn
Data Science: Pandas, NumPy, Matplotlib, Seaborn
Miscellaneous: Git, TensorBoard, GNU Octave, LATEX

Writings (All available on my website)

Can right facial cues reveal political orientation?

- This interesting research combining psychology and computer vision asks the question "Can machines learn political orientation from face images of people?" It turns out that when right descriptors are extracted, and fed into a simple classification algorithm, a pretty great estimation of political orientation from face images is possible.

Interpreting neuroscientific models with DeepTune

- DeepTune framework provides rich, concrete and naturalistic characterizations of V4 neurons that refine significantly findings of previous studies. The process is to simply visualize by optimization (optimizing input image for maximal network output), once neuroscientific demands are all settled.

Remote Monuments

- "I will call the attention of the crowd to their own ruination. And if they don't want to see it willingly, I shall make them see it by fair means or foul. Please understand me — or, at least, do not misunderstand me. I do not intend to beat them... I will force them to beat me. Thus I actually compel them. For if they begin to beat me, they will probably pay attention; and if they kill me, they most definitely will pay attention, and I shall have won an absolute victory." - Kierkegaard, The Diary of Søren Kierkegaard