Saeed Khorram

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Education

Oregon State University, Corvallis, Oregon, USA
Ph.D. in Computer Science (Expected 2021)
M.Sc in Computer Science (June 2020)
Advised by Fuxin Li,
Amirkabir University of Technology (Tehran Polytechnic),Tehran, Iran
Bsc. in Electrical Engineering — Minored with Applied Mathematics (Mar 2017)

Research Interests

Deep Learning, Interpretable AI Systems, Computer Vision, Feature Disentanglement, Optimization, Reinforcement Learning.

Research And Work Experiences

2D/3D Computer Vision for Autonomous Vehicles *Machine Learning Research Engineer Intern at Scale AI, Jan - Apr 2021*
Pre-labling scenes based on Lidar and camera inputs from Autonomous Vehicles.

eXplainable Artificial Intelligence (XAI)
Researcher at Oregon State University, Dec 2017 - Now

- **Understanding recurrent policy networks by Finite-State Machines (FSM)**: Quantizing the representations of memory and observations of RNNs and analyzing them using FSM, known as Moore Machine. (ICMLW'20 + ICML'21)
- **Non-negative factorization for feature disentanglement:** Layer-wise feature disentanglement of deep networks by low-rank matrix factorization and a novel training scheme for deep networks using ADMM (Dissertation + preprint)
- **Integrated-Gradient optimized attribution (saliency) maps:** Saliency map generation methods that optimize masks using integrated gradient. (**I-GOS:** CVPR 2019 workshop + AAAI 2020. **iGOS++:** ACM-CHIL'21)
- **Deep feature embedding for automatic high-level concept extraction:** proposing a novel explanation module for extracting high-level concepts from the activation space of the deep networks (Journal of AI'20)

Automatic Medical Coding *Data scientist at Carrene, May - Dec 2017*
Research on automatic medical prescription analysis and coding.

Publications

- Mohamad H. Danesh, Anurag Koul, Alan Fern, **Saeed Khorram**. "Re-Understanding Finite-State Representations of Recurrent Policy Networks". (ICML 2021)
- **Saeed Khorram**, Xiao Fu, Mohamad H. Danesh, Zhongang Qi, Li Fuxin. "Stochastic Block ADMM for Training Deep Networks" (pre-perint).
- **Saeed Khorram**, Tyler Lawson, Li Fuxin. "IGOS++: Integrated Gradient Optimized Saliency by Bilateral Perturbations". (ACM-CHIL'21)
- Mohamad H. Danesh, Anurag Koul, Alan Fern, **Saeed Khorram**. "Understanding Finite-State Representations of Recurrent Policy Networks". (ICMLW'20)
- Zhongang Qi, **Saeed Khorram**, Li Fuxin. "Embedding Deep Networks into Visual Explanations". (Journal of AI'20)
- **Saeed Khorram**. "Toward Disentangling the Activations of the Deep Networks via Low-dimensional Embedding and Non-negative Factorization". (Dissertation)
- Zhongang Qi, **Saeed Khorram**, Li Fuxin. "Visualizing Deep Networks by Optimizing with Integrated Gradients". (CVPRW'19 - AAAI'20)
- Mehran Soltani, Mohammad Hasan Shammakhi, **Saeed Khorram**, Hamid Sheikhzadeh. "Combined mRMR filter and sparse Bayesian classifier for analysis of gene expression data". (ICSPIS'16)

Coding

{Python, Matlab, C}, {PyTorch, Keras, Tensorflow}, {JavaScript, HTML, CSS}, {Bash, Git}