Isaac Rehg

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Education

B.S. | JUNE 2018 | UNIVERSITY OF CALIFORNIA – SAN DIEGO
· Major: Math – Computer Science

M.S. | CURRENT | GEORGIA INSTITUTE OF TECHNOLOGY
· Major: Computer Science with Specialization in Machine Learning

Experience

RESEARCH ASSISTANT | GEORGIA INSTITUTE OF TECHNOLOGY | 08/2019 – CURRENT
· Led team in researching performance of SGD-based algorithms in shifting data domains
· Discovered model-averaging yields SOTA iCIFAR-10 performance when feature-spaces are aligned
· Trained transformers for constituency parsing, paraphrasing and summarization
· Designed novel approach to syntax constrained text generation using Graph Attention Neural Networks
· Built framework to dynamically allocate representational capacity for application in multi-task learning

STUDENT ASSISTANT | UNIVERSITY OF CALIFORNIA – SAN DIEGO | 09/2017 – 03/2019
· Applied Spherical Convolutions to learn 3D object representation from 2D images and obtain SOTA results for multi-view image classification
· Implemented autoencoder for image captioning in PyTorch using ResNet and LSTM networks
· Developed data-parallel script to train Bidirectional RNN for machine translation 2x faster
· Improved accuracy of machine translation model by 3 points using novel boosting approach

TECH CONSULTANT | R-DEX SYSTEMS | 06/2017 – 09/2017
· Led development of real-time object detection software product in Caffe and OpenCV
· Built Cascade Classifier in OpenCV within 2 weeks of hiring to quickly provide client a proof of concept
· Leveraged image augmentation to improve detector's generalization and cut data collection time in half
· Applied transfer learning to adapt Single-Shot-Detector to the client's object detection domain, yielding 8x speedup and boosting detection recall significantly over previous detection system

Publications

· *Recognizing Objects From Any View With Object and Viewer-Centered Representations.* **CVPR**. 2020.
· *Transformer-Based Neural Text Generation with Syntactic Guidance.* **ArXiv**. 2020.
· *Does Continual Learning = Catastrophic Forgetting?.* **CVPR.** 2021. (under review)

Opensource Projects

· *TackleBox* - isaacrehg.com/tacklebox - Available on PyPI: pypi.org/project/tacklebox/

Skills & Abilities

· Python, Tensorflow, PyTorch, Scikit-learn, Pandas, NumPy, Seaborn, Matplotlib, Git (**4 years**)
· Computer Vision, Object Detection, Machine Translation, NLP, Image Understanding, Recommender systems, Entity recognition, Free text generation, Time-series modeling, Object-oriented design
· Google Cloud, AWS, Spark, Hadoop, SQL, C, C++, C#, Java, R, Javascript, Agile development