HYUN JAE, CHO

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Education

University of Virginia (December 2019)
- M.S. in Computer Science (GPA 3.96 / 4.00)
- Thesis: Towards Automated Safety Coverage and Testing for Autonomous Vehicles
- 2018-2019 Department of Computer Science Academic Excellence Fellowship
- Coursework: Natural Language Processing, Computer Vision, Bayesian Machine Learning

University of California, Berkeley (May 2018)
- Computer Science
- Coursework: Machine Learning, Artificial Intelligence, Optimization Models

Skills/Interests: Natural Language Processing, Computer Vision, Reinforcement Learning, Bioinformatics

Research Experiences

University of Virginia - Link Lab (Fall 2018 - current)
- Evaluate safety of Baidu Apollo's AD stack using LGSVL simulator.
  - Discovered two edge cases that Baidu Apollo's AD stack fails to drive safely in a simulated traffic scenario by implementing an actor-critic reinforcement learning model.
  - Two edge cases: indirect perception stack failure and direct collision against a non-autonomous vehicle.
  - Directed by Prof. Madhur Behl.

University of Virginia - DataBio (Fall 2019 - current)
- Identified distance-related correlations among pairs of transcription factor binding sites (TFBS) in chromosomes by transforming them into vector embeddings by applying the GloVe algorithm.
- Directed by Prof. Nathan Sheffield.

UC Berkeley - SETI (Fall 2017)
- Implemented convolutional neural networks (CNNs), transfer learning with VGG19, Mask R-CNN for detecting radio pulses called Fast Radio Bursts (FRBs) with 99% accuracy.
- Directed by Ph.D. student Jerry Zhang.

Projects

Mutation Testing for Deep Neural Networks (Fall 2019)
- Inserted mutants into a deep neural network model and its training data to evaluate test dataset robustness. A reproduction work for DeepMutation paper.

Bayesian Image Classification (Spring 2019)
- Applied Bayesian conditional probability concept to neural networks for improving robustness against uncertain image classifications.
- Doubled the classification accuracy of image classification when compared to conventional neural networks.

Variational Image Captioning using Deterministic Attention (Fall 2018)
- Designed and implemented an image captioning model that generates diverse and accurate captions given an image by combining deterministic attention mechanism and conditional variational autoencoder.