Pian Pawakapan

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EDUCATION

Cornell University, College of Arts and Sciences, Ithaca, NY
B.A. in Computer Science, Class of 2021, GPA : 3.82
Rawlings Presidential Research Scholar (RCPRS)

EXPERIENCE

May-Aug 2020

Computer Vision Intern @ Siriraj Medical Research Center (SiMR) [link]

- Designed and developed deep learning algorithms for evaluating the ISUP grade & Gleason score of megapixel biopsy image files (.tiff, .svs)
- Implemented and compared various techniques for improvement - false negative reduction, hard-case/attention-based sampling, fast hierarchical tiling for locating regions of interest

May-Aug 2020

Front-End/Data Visualization Intern @ Boonmee Lab/ELECT [link]

- Worked with D3.js, Vue.js, Python, and HTML/CSS/JS for a data journalism project, from web scraping, data cleaning & analysis, to data visualization and web design.
- Project on data analytics for the company's chatbot feature, involving ULMfit classification, sentiment analysis, keyword extraction, and similarity search for NLP data.

Sep 2019-Mar 2020

Data Science Intern @ Visenze
Data Science Team - Singapore

- 2-3 projects on end-to-end ML for CNN models, from data sourcing, model training, dataset iteration, error analysis, architecture tuning, and model deployment
- Other projects on POC/full-workflow/toolkit library additions in PyTorch, involving CycleGANs, domain adaptation, semi-supervised learning, and confidence calibration for CNNs, etc.

May-Aug 2019

Research Engineer Intern @ SRI International
Vision and Learning Group - Princeton, NJ

- Wrote PyTorch research code for experiments on architecture design, adversarial robustness, model interpretability, and visualizing feature representations on Neural ODEs and ResNets.
- Trained knowledge-graph question-answering models, using LSTMs and GNNs on extracted subgraphs from YAGO & Wikidata, and developed a frontend using Python Speech-to-Text for user commands

Aug 2018-May 2019

Undergraduate Researcher - Cornell University (Wei-Lun Chao, Prof. Kilian Weinberger)

- Improving depth-estimation for CV in autonomous driving. Wrote PyTorch & TensorFlow to modify SOTA CNN architectures to run with different training & inference modes (un/semi-supervised with stereo/video image sequences, etc.)
- Improved depth prediction by 20% at long ranges over supervised learning benchmark
- Worked on amodal semantic segmentation. Designed methods for synthetic data generation, model training, and implemented architectural changes for image segmentation models (DRNs)

Aug 2018-May 2019

Research Team Member - Cornell University Vision and Learning Group (CUVL)

- Fast implementation of research ideas in PyTorch, and paper reading/presentations on areas such as adversarial attacks, graph neural networks, image captioning
- Involvement led to workshop submission: Intermediate Level Adversarial Attack for Enhanced Transferability

Aug-Dec 2018

Teaching Assistant, CS 4780 (Machine Learning for Intelligent Systems)

- Graded homeworks, assisted students, and explained concepts on supervised machine learning

PROJECTS

May-Aug 2020

Artistic Style Search [link]

- Developed a webapp for searching similar artwork for user images, indexed from over 100,000 images from the MET, Rijksmuseum, and Europeana Open Access images
- Designed and implemented a deep-learning-based heuristic for artistic style similarity, with a style transfer extension for transforming user images into artworks
- Built a RESTful Python backend server using Flask & Pytorch, along with a user interface in Javascript using Vue.js

Nov 2019-Jan 2020

Kaggle - Data Science Bowl 2019 [link]

- Achieved top 2% competition performance via LightGBM, feature engineering & selection, Bayesian optimization, model stacking, and adversarial validation

Aug-Dec 2017

Critterworld (CS 2112 Project)

- Built and designed RESTful API server in Java for game engine, and GUI client in JavaFX for user interaction
- Developed a parser and executor for in-game language commands, parsing tokens into an AST and executing them to update the server game state
- Designed and developed multiple components and classes according to OOP best practices and design principles

COURSES

Honors Object-Oriented Programming ● Analysis of Algorithms ● Computer Systems ● Operating Systems ● Computer Vision ● Machine Learning ● Functional Programming ● Computer Graphics ● Basic Probability ● Theory of Statistics ● Combinatorics ● Linear Algebra ● Number Theory

LANGUAGES/ FRAMEWORKS

Python ● R ● SQL ● Javascript ● Java ● C ● Ocaml
PyTorch ● TensorFlow ● Keras ● Scikit-learn ● Vue.js ● D3.js ● HTML/CSS