Johnny Qin

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Education

University of Michigan **Michigan, MI**
B.S.E in Computer Science May 2023
Related Coursework:
- Data Structure and Algorithms, Web Systems, Computer Organization, Machine Learning, Natural Language Processing, Introduction to Artificial Intelligence, Computer Vision, Foundations of Computer Science.

Research

Body Dimension Estimation from Clothed 3D Scans **University of Michigan, MI**
Research Assitant May 2022–Aug 2022
- Defined problem settings, potential solutions and final deliverable with professor and other team members.
- Formulated python scripts to do body dimension estimation using Openpose and ray tracing from images.
- Held meetings weekly to present updates, solve difficulties, and schedule plans for next week.
- Designed and packed an application for Mac and Windows allowing batch operations and distributions.

Employment

Amazon Web Services **Seattle, WA**
Software Development Engineer - Worldwide Revenue Operations Team May 2022–Aug 2022
- Developed a typescript middleware using Apollo and GraphQL to record and process data from user queries.
- Created a customized extendable Apollo Plugin that can render selected tracing data to users.
- Collaborated with mentor and other members to refine features and user interface of plugin and middleware.
- Wrote unit and integration tests for middleware and plugin in multiple testing stages before launching.

BOE Technology Group Co. **Beijing, China**
Software Development Engineer - Artificial Intelligence and Big Data Research Team May 2020–Sept 2020
- Gathered and Maintained commands corpus used for training AI Voice Assistant specialized in art exhibitions.
- Scraped and cleaned last two years shows and exhibitions data from Internet into different categories.
- Devised time expression patterns and generated compressed Regex Expressions in python to do recognition.
- Built python scripts to catch time words and obtain timestamps from given sentences using regex expressions.

Projects

Modified Closed-Form Factorization of Latent Semantics in GANs (ICA-SeFa)
- Collaborated implemented a new efficient algorithm to discover controls about semantic directions in images.
- Applied independent component analysis (ICA) to decompose the weights of first layer from GAN generator.
- Deployed algorithms on Human, Car, Cat datasets. Achieved 2 times faster and better directions modifiability and interpretability such as glasses, car models, and cat breeds.
- Designed experiments, recruited 8 volunteers to qualitatively evaluate performance between ICA-SeFa and SeFa by measuring mean-opinion-score(MOS). Concluded that ICA-SeFa shows better interpretability
- Collaborated implement Re-scoring analysis based on Contrastive Language-Image Pre-training (CLIP) to quantitative evaluate ICA-SeFa and SeFa. Concluded ICA-SeFa better target at one interpretable dimension.

XLNet on Tiered Reasoning Intuitive Physics (TRIP)
- Explored BERT, RoBerta and DeBerta on TRIP dataset, a commonsense real world physics dataset.
- Trained and fine-tuned XLNet model on TRIP dataset, achieved baseline accuracy, consistency, verifiablity on tasks involving determining implausible story from a pair, finding the pair of conflicting sentence in that implausible story, and concluding which of physical states leads to the conflicting story.

Search Engine
- Built a multithreading MapReduce server that can distribute user-submitted tasks to multiple workers.
- Implemented a fault-tolerant Hadoop server to manage multiple workers using asynchronous programming.
- Created an index server using REST API and MapReduce to generate page ranking for search results.
- Constructed a server-side dynamic search engine that returns pages of search results given user entries.