Zhengqi(Drago) Dong

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EDUCATION

Ohio State University, Columbus, OH (Expected graduation: May 2021) GPA: 3.6 / 4.0

B.S Computer Science Engineering (Minor in Statistics)

University of Dayton, Dayton, OH (August 2016 – August 2017) GPA: 3.8 / 4.0

ENGINEERING EXPERIENCE

CSE 5914.01 High-Performance Deep Learning, The Ohio State University (Aug 2020 – Present)

- Proposed and tested numerous model parallelism implementation on U-net and ResNet-like architectures for high-resolution pathological disease images detection that could trained on High-Performance Computing(HPC) system.
- Developed, trained, and analyzed the performance(time and acc) of different DNN models on different scale of datasets by varying # of cores on CPUs/GPUs, # of batch size, learning rate, optimizer, and type of MPI communication libraries on OSU Supercomputing Center(OSC).
- Designed and benchmarked the performance of different ML algorithms supported by the Dask-ML library on OSC cluster and provided the visualized task graphs and process utilization through Dask Dashboard via the port forwarding technology.

CSE 5525 Foundations of Speech and Language Processing , The Ohio State University (Aug 2020 – Present)

- Implemented the following algorithm from scratch: Naïve Bayes/Logistic Regression Classifier, HMM(Hidden Markov Model)/CRF(Conditional Random Field) Tagger, Attention Based Encoder-Decoder Model.
- Proposed a hybrid filtering recommender system on the Full MovieLens dataset for the final project.
- Researched and analyzed different type of text embedding methods to improve the performance, e.g. Word2vec, Doc2vec, and BERT.

Deep-Learning Based Plant Disease Diagnosis System, Honor Research Project, The Ohio State University (August 2019 – present)

- Conducted the benchmark testing for various object detectors and backbone DL architectures for the PlantVillage disease dataset, e.g., InceptionNet, ResNet, and NASNet, and MobileNet.
- Fine-tuned the InceptionV3 model and achieved 99.5% acc in training and 98.11% in validation under 20 hours of training.
- Award $5500 scholarship by College of Engineering towards “Research Distinction” or “Honors Research Distinction".

CSE4471 Information Security Final Project – Spam Filter Detector, The Ohio State University (May-July 2020)

- Data Processing: extracted the text body from MIME email format; split dataset to training, validation, and testing; tokenized sentence and removed the stopwords for feeding to neural networks.
- Conducted the study applying Recurrent Neural Network (RNN), Gated Recurrent Unit (GRU), Bidirectional Long short-term memory (LSTM), and Fine-tuned the Global Vector (GloVe) language model on the spam email detector on Apache SpamAssassin open-source dataset.
- Achieved 99.5% acc in training and 96% in validation, and further visualized the word embedding vector in TensorBoard.

CSE2421 Operation System Project: Air Traffic Control Simulator, The Ohio State University (August – Dec 2019)

- Created an Air Traffic Control Simulator in C including a character-based graphical display with over 800 lines of code spanning decades of files.
- Wrote generic linked-list usable with any data type and proven to handle memory allocation failures.
- Used curses library for display control, nanosleep function to accelerate the simulation process.
- Used dynamic memory allocation and gracefully deals with allocation failures.
- Dealt with numerous unit conversions for heading speed, heading degree, screen size, flight position and etc.

CSE3901 Web Application Final Project: Freelance Canvas Web Application, The Ohio State University (May-July 2019)

- Used CSS(Bootstrap), HTML, and SASS to design the web frame interface.
- Used Ruby on Rails for the whole application framework, includes features such as like, follow, and comment.
- Used Device modules for password registration, confirmation, recovery, authentication functions
- Used ER-diagram and SQLite to design and store user data.

OSU Data-IO 6-hr Competition — winner of Mid-Ohio Food Bank Challenge (October 2019)

- Reformatted/cleaned/processed/fitted data and produced the visualization result to the final report.
- Conducted time series analysis (identify the seasonality/stationarity/trends/autocorrelation) on the consumer flow volume and gave suggestions in improving logistic management.

AI Team Member, 2019 RoboMaster Competition at ShenZhen, IEEE Undergraduate Chapter (September 2018 – May 2019)

- Tagged the ground truth labels and bounding boxes over 500 pictures clipped form past video.
- Tested and evaluated the performance and accuracy of three robots’ aiming system.
- Practiced operating the Standard Robot and Drone with remote controller in a simulated battlefield.

Member of Connected and Autonomous Vehicles (CAVs) teams, OSU EcoCAR 3 Competition (August 2018 – December 2018)

- Used Python and MATLAB to implement the Kalman Filter(KF) and Extended Kalman Filter(EKF) with the goal of developing a robust sensor fusion algorithm for line detection and following.
- Analyzed the old EcoCar3 Architecture and Version Control system and introduced the basic mechanisms of GitHub.

2018 IEEE SAC Micromouse competition at Pittsburgh, IEEE Undergraduate Chapter (January 2018 – April 2018)

- Programed the DFS/BFS/Uniform cost/A* search algorithm with Python on Micromouse robot to search the shortest path in a maze

SKILLS

Related Coursework

- CSE1223(Java), ECE2020/2060(Analog & Digital Logic), CSE2321/2331(Algo & Ds), CSE2421/2431(OS), CSE3901(Web Dev), CSE3241(Database), CSE4251(Unix), CSE4256(Python), CSE3521/5522(AI), CSE3461(Networking), CSE4471(Info Security), CSE5523(Machine Learning), CSE5526(Neural Network), CSE5914.01(High-performance DL), CSE5525(NLP)
- Stat4201/4202(Probability & Statistic), Stat4194(R Programming), Stat3301/3302(Statistical Modeling)

Techniques and skills

- Programming language: Python(with TensorFlow Developer Certificate), R(tidyverse and shiny), C (familiar with GDB and makefile), Java, Ruby, Ruby on Rails, SQLite, X86 Assembly Language(Little Endian), HTML, CSS, JavaScript, Latex, MATLAB
- Technology: Distributed Deep Learning (Familiar with LBANN/TensorFlow/PyTorch framework, Horovod/Dask/mpi4py library, Slurm/PBS scheduler, and common HPC environment), PyCharm, RStudio, Eclipse, Linux, Git, SolidWorks, Arduino, Jetson TX2 and Nano, AWS (Cloud 9)
- Languages: English, Chinese (Native)

EXTRACURRICULARS

Student Instructional Assistant, The Ohio State University, Columbus, OH (Aug 2020 – Present)

- Teaching assistant and grader for CSE 3461(Computer Networking and Internet Technologies) under the supervision of Jim Vickroy through the Department of Computer Science.
- Required to oversee lab sections, maintain weekly office hours, and grade student homework and projects.

WebMaster, IEEE at OSU Undergraduate chapter, Columbus, OH (January 2018 – Present)

- Designed and maintained IEEE's website(https://ieee.osu.edu/) powered by Drupal Content Management System(CMS) and routinely posted newest organization events and activities.

Vice-president, OSU Table Tennis Club, Columbus, OH (May 2019 – May 2020)

- Conducted weekly training session and coached fundamental skills to improve member's serving, flicking, looping and striking ability.
- Cooperated with other club officers to manage the 2019 NCTTA tournament plan at Iowa University, Friendship Cups at University of Toledo, and various seasonal tournaments.
- Cooperated with Nike's "Project Move" program to deliver and promote table tennis culture and spirit.

Student Volunteer, Mid-Ohio Workers Association, Columbus, OH (Oct 2017– Jan 2018)

- Wrapped gifts during Thanksgiving, set up family events for Christmas dinner, delivered donated food to low-income families, helped to edit photos, and canvased hundreds of neighbors.

Volunteer of Kroger Pantry Indoor Assistant, Mid-Ohio Foodbank , Columbus, OH (~30hr in total)

- Assisted the manager organizing and packing the foods, stored them to the warehouse, and distributed to the customers.

Student Operations Assistants, University of Dayton Residential Property, Dayton, OH (May 2017-July 2017)

- Diagnosed and noted all damaged walls, outlets, and furniture throughout about 300 dormitories.
- Tracked inventory, coordinated logistics, and collaborated with team to replace all unusable or old furniture.
- Cleaned and discarded all spoiled foods and clothes abandoned at the cabinet and wardrobe.

HONOR AND ACTIVITIES

- Achieved Dean's List (>3.5 GPA) for five semesters, active Honor student in OSU and Honor Collegian Program.
- Awarded 2020 IEEE Excellent Service Award, active IEEE members (Student Member, 2018–Present).
- Activate NCTTA(National Collegiate Table Tennis Association) member (Student member, 2018—Present)
- Personal interest: Table Tennis (>5 years professional practices), Martial Art (Red Belt), Climbing, Track and Field, Scuba Diving (Certified Open Water Diver), Photography, Cooking, Camping, Skiing/Snowboarding, and Traveling.