Zihan Sun

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Location: Taiyuan, Shanxi Province, China

EDUCATION

Taiyuan University of Technology | B.Eng. in Software Engineering | GPA: 3.57/5.00   **September 2018 - July 2022**

Relevant Courses: Computer Network, Design and Analysis of Algorithms, Principle of Database System, Program Design Curriculum, Operating System, Machine Learning, Foundation of Computer Hardware, etc.

Honors: Scientific and Technological Innovation Scholarship, 2020&2021; Academic Excellence Award, 2019; Individual Scholarships, 2019&2020; Certificate For Red Cross First Aider.

PROFESSIONAL EXPERIENCE

Datawhale   **May 2020 - August 2022**

- **leeml-notes:** Wrote the auxiliary materials for Mr. Li Hongyi's machine learning video. I was primarily responsible for writing the classic machine learning and natural language parts.
  GitHub: https://github.com/datawhalechina/leeml-notes
- **Blockchain:** Organized and wrote Solidity, Web3js, and contract examples. I am the project leader. After the release, 55 people participated and received good reviews.
  GitHub: https://github.com/datawhalechina/team-learning-program/tree/master/Blockchain
- **Machine-learning-toy-code:** Implemented and explained the learned version and Numpy version of K-means, KNN, PCA, and HMM algorithm, to make a code sample for Mr. Zhou Zhihua's Machine Learning(watermelon book).
- GitHub: https://github.com/datawhalechina/machine-learning-toy-code**Paper sharing:** Participated in and held paper sharing, including three fields of recommendation system, nlp, and cv.

RESEARCH EXPERIENCE

Recognition and Judgment of English Composition Structure   **February 2022 - May 2022**
Team Leader   *Taiyuan, China*

- Conducted experiments and verified from four different ideas: Simple Method, Question Answer, Sentence Classification, Named Entity Recognition and found that the NER idea has the best results
- Used dynamic learning rate, add LSTM head or GRU layer, removed stop words, and replaced \n with <newline> tag for marking, used Random Mask for improvement
- Used WBF to fuse the model and tried to use XGB, and LGBM for post-processing

Ubiquant Challenge   **January 2022 - March 2022**
Team Member   *Beijing, China*

- Used yield to rewrite the loop process and MapReduce programming
- Designed a simulation matchmaking system, and finally won sixth place in the preliminary competition, and won the excellence award in the final competition

Kaggle: Tabular Playground Series   **February 2022 - February 2022**
Team Leader (Individual competition)   *Online, China*

- Used Extra trees and LightGBM as classifiers, and tried two KNN distances: Euclidean distance, Manhattan distance
- Performed model fusion and achieved a global score of Top 2%

Kaggle: TensorFlow - Help Protect the Great Barrier Reef   **November 2021 - February 2022**
Team Leader (Individual competition)   *Online, China*

- Used YOLOV5 as the baseline model and data augmentation (employ a mix of random flips, scale, shift, rotate, brightness, contrast, cutout, cut mix)
- Used optical flow, estimated the bounding boxes of the next frame from the previous frame's detection result; Tried different sizes and different architecture; performed Multiscaling training and WBF fusion
- Achieved Top 5% of the world and gained the silver medal

Kaggle: CommonLit Readability Prize   **May 2021 - August 2021**
Team Leader (Individual competition)   *Online, China*

- Used Roberta as the baseline model, grabbed data from the same URL in the training data for data augmentation, and trained a GPR model using the attention-head embedding
- Used differential learning rates for BERT layers, tried BERT's first and last hidden layer into the LSTM layer, and the weighted average of hidden layers, then tried model fusion
- Achieved a global score of Top 4% and won the silver medal

ASC Student Supercomputer Challenge   **October 2020 - May 2021**
Team Member   *Shenzhen, China*

- Assembled the server snd performed operation and maintenance, and chose the solution of three nodes and eight cards (all tasks need to be performed under 3000w power consumption)
- Used Bert as the baseline, compared Roberta, Xlnet, and Albert, and enhanced and modified the data; innovatively proposed the double mask strategy, and fused different models
- Won the fifth place in the world in the preliminary round, and the first prize in the final; compared with the baseline (Bert Model) of the Language Exam, it has increased by 5 percentage points, and QuEST has also been optimized

Mathematical modeling   October 2020 - October 2020
Team Leader   *Taiyuan, China*
- Responsible for model design and programming, using XGB, LGBM, and other models, and wrote papers
- Won the second prize at the provincial level in the National Undergraduate Mathematical Modeling Contest and the third prize in the Huawei Cup Mathematical Modeling Contest

Shanxi University Students Intelligent Lighting Contest   December 2020 - November 2020
Team Leader   *Taiyuan, China*
- Based on the 51 development board, used Keil4 for development, and realized a heart-shaped light , which changed different colors at different times with the frequency and loudness of the music, finally Won the provincial second price

PROJECTS & ACTIVITIES

Chinalife R&D Center   August 2022-Present
Intern Data Science Department   *Chengdu, China*
- Participated in and optimized the domestic database OpenGuass, and migrated the original database
- Designed and developed the construction of multi-rule real-time query engine

Mashang Consumer & Institute of Computing Technology, Chinese Academy of Sciences   August 2022-Present
Intern   *Online, China*
- Research topic: Semi-Supervised Learning and MultiModal Machine Learning

Deecamp   Jule 2022-August 2022
Team Member   *Online, China*
- Used nnUNet for training on the CTSpine1k skeletal spine dataset, the best average Dice coefficient is 0.866
- Using Long-tailed Learning Counts to Enhance Model Generalization

Xbotpark   July 2022-July 2022
Team Leader   *Changzhou, China*
- Investigated and conducted in-depth interviews in the food delivery industry, sun protection and cooling industry, and explored the pain points of users
- Designed and produced a cooling suit, which won the unanimous approval of many experts in the final product display, and won the TOP1

Kent State University   June 2022- July 2022
Intern   *State of Ohio, USA*
- Research topic: P4. Physics Law in robot reasonable

Scientific Cloud Computing Center   October 2019-February 2022
Deputy Head   *Taiyuan, China*
- Responsible for the management and maintenance of the scientific cloud computing center, one is to publicize the supercomputing center from the media and communicate with teachers; the other is to promote the discussion of deep learning and parallel computing and organize students to do scientific research and participate in competitions
- Promoted the whole process of the laboratory from "fault" to" rejuvenation", and made the laboratory once again become one of the business cards of Taiyuan University of Technology

Anseeking   June 2020-August 2020
Entrepreneurial member   *Jinan, China*
- Responsible for building the recommendation system to help solve the problem of unbalanced regional education information development

Applysquare   July 2019-August 2020
New media operation intern, Marketing Department   *Beijing, China*
- Responsible for the community operation of applicants, the layout and writing of articles on WeChat public account and Zhihu; searched for programs and cases and helped product managers mine user needs
- Hosted a medium-sized online event (more than 500 participants), which brought good profits to the company

Taiyuan University of Technology Security Office   March 2019-Jule 2020
Head of Douyin Working Group, Propaganda Department   *Taiyuan, China*

Taiyuan University of Technology Student Union   October 2018-Jule 2019
International Exchange Department, Member   *Taiyuan, China*

SKILLS

- Programming language: C, C++, Python, Java, Golang, JavaScript
- Hobbies: Tennis, basketball, listening to music, reading, photography, traveling, watching movies, playing guitar
- Others: Willing to share learning experiences and notes, get 2k+ subscriptions on some platforms