Xiaohan Zou

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Education

Boston University, Boston, MA, USA   09/2021 – 01/2023 (Expected)
M.S. in Computer Science

Tongji University, Shanghai, China   09/2016 – 07/2020
B.Eng. in Software Engineering

Publications and Submitted Manuscripts

○ **Xiaohan Zou**, Changqiao Wu, Lele Cheng, and Zhongyuan Wang. "Rethinking Fine-grained Semantic Alignment in Video-Text Retrieval", **submitted to** International Joint Conference on Artificial Intelligence (**IJCAI**), 2022.

○ **Xiaohan Zou**, Cheng Lin, Yinjia Zhang, and Qinpei Zhao. "To be an Artist: Automatic Generation on Food Image Aesthetic Captioning", International Conference on Tools with Artificial Intelligence (**ICTAI**), 2020. (Acceptance Rate: 25%, **Oral Presentation**) [Paper] [Code] [Slide]

○ **Xiaohan Zou**. "A Survey on Application of Knowledge Graph", International Conference on Control Engineering and Artificial Intelligence (**CCEAI**), 2020. [Paper]

Professional Experience

Machine Learning Intern, Kuaishou Technology, Beijing, China   07/2021 – Present
○ Devised a new model-agnostic formulation for fine-grained cross-modal semantic alignment and subsumed the recent popular works into the proposed scheme
○ Proposed a video-text retrieval method which is competitive when compared with the SOTA approaches with heavy model design by only altering the similarity function, **submitted to IJCAI 2021**
○ Developed a PyTorch library for video-text retrieval which is benefiting our group members' research work

Software Engineer Intern, China Electronics Technology Group Corporation   10/2020 – 06/2021
○ Involved in building a security visualization system for Sanxingdui using Cesium and Vue, responsible for displaying 3D models and visualizing sensor data
○ Developed a demo for a real time person pose estimation model
○ Wrote scripts to label ancient handwritten characters and generate OCR training files automatically

Game Engineer Intern, Banana Interactive, Shanghai, China   10/2019 – 05/2020
○ Completed the first release version of a H5 game independently
○ Participated in the development, updating and testing of 3 H5 games, developed and maintenanced a skin system, shop system and item system
○ Ported a game packaging and deployment tool from Windows to Linux and macOS

Research

Personalized Product Description Generation, Deecamp 2021   06/2021 – 08/2021
○ Incorporated product attributes, personalized information and external knowledge to T5 pre-trained model using transformer and bidirectional attention to generate interesting and informative product descriptions
○ Developed a fancy cross-platform website for interacting with our model using Vue and uni-app
○ Won the champion of the language track in Deecamp 2021.

Food Image Aesthetic Captioning, Tongji University, Link   04/2020 – 06/2020
○ Proposed a novel framework consisting of a single-attribute captioning module and an unsupervised text summarization module for generating aesthetic captions for food images, **published in ICTAI 2020**
○ Designed a data filtering strategy inspired by TF-IDF method for building a dataset for this new task
○ Introduced two new evaluation criteria to assess the novelty and diversity of the generated captions
○ Outperformed baselines and existed methods substantially in terms of diversity, novelty and coherence

Fault Diagnosis for Microservice Architectures, Tongji University   09/2018 – 01/2019

Worked on building a fault diagnosis system for microservice architectures, sponered by Huawei

- ○ Represented the microservices of a cloud platform and the causal relationships between them by a Bayesion network against the observed performance metrics dynamically using PC algorithm
- ○ Identified the culprit microservices when an anomaly occured using random walk
- ○ Outperformed traditional approaches with 6.56% accuracy improvement, without knowing the calling graph

Semi-Supervised Machine Translation, Peking University   07/2018 – 08/2018

- ○ Proposed a dual learning framework based on shared hidden space to utilize the structure duality to boost the learning of two dual tasks and better regularize the model
- ○ Designed two denoising auto-encoders consisting of encoders and decoders of two traditional Seq2Seq neural machine translators to make use of unpaired data
- ○ Outperformed strong baselines by 1.0 - 2.9 BLEU on IWSLT'15 (English-Vietnamese) and WMT'14 (English-German), the improvement is more obvious when labeled data is little

OPEN-SOURCE PROJECTS

Flint: A toy deep learning framework implemented in Numpy from scratch, Github 01/2021 – Present

- ○ Implement an autograd engine, Linear, Convolution, Pooling, Flatten, RNN, Dropout and BatchNorm layers, 6 optimizers, 4 loss functions, 3 activation functions, 5 initializers and a data loader in pure Numpy
- ○ Wrote complete documentation and comprehensive unit tests

Speech Emotion Recognition, Github   04/2019 – 06/2019

- ○ Implemented several models and features extracting methods for speech emotion recognition
- ○ Achieved 7.2 - 12.2 accuracy improvement over baseline on four benchmark datasets: CASIA (Chinese), EMODB (German), SAVEE (English), and RAVDESS (English), got over 300 Github stars

AWARDS AND HONORS

Champion of the Language Track, Deecamp   2021

Bronze, China Collegiate Programming Contest (CCPC)   2018

Honorable Mention, ACM International Collegiate Programming Contest (ICPC) Asia Regional 2018

Bronze, Internet+ Innovation and Entrepreneurship Contest for University Students   2018

Second Prize, Programming Contest of Tongji University   2017, 2018

Second Prize, China Mathematical Contest in Modeling (CUMCM)   2017, 2018

Second Prize, Programming Contest of East China Normal University   2017

LEADERSHIP AND ACTIVITIES

Vice Chief Technology Officer & Chief Experience Officer, Tongji Microsoft Student Club

- ○ Gave lectures about data structure and algorithms as well as their applications in machine learning on technology courses

CORE COURSES

- ○ **Boston University:** Machine Learning, Graduate Algorithms, Object-oriented Software Principles and Design
- ○ **Tongji University:** Data Structure, Algorithms, Database, Operating Systems, Principles of Compilers, Object-Oriented Programming, SOA and Web Services, Web System and Technology, Distributed System

SKILLS

Programming Languages: Python, JavaScript/TypeScript, HTML/CSS, Java, C/C++, MATLAB

Tools and Frameworks: Git, PyTorch, Keras, scikit-learn, Linux, Vue, React, Django, LaTeX

Languages: Chinese (native), English (proficient, TOEFL: 106, GRE: 322)