Xiaohan Zou

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Education

Tongji University, Shanghai, China   09/2016 – 07/2020

B.Eng. in Software Engineering, Overall GPA: 84.35/100

Core Courses:

- **Statistics & Mathematics:** Probability and Mathematical Statistics, Discrete Mathematics, Calculus, Linear Algebra, et al.
- **Computation:** Data Structure, Algorithm, Database, Operating Systems, Principles of Compilers, Object-Oriented Programming, SOA and Web Services, Web System and Technology, Distributed System, Cybersecurity, et al.

Publications and Submitted Manuscripts

- **To be an Artist: Automatic Generation on Food Image Aesthetic Captioning**
  Xiaohan Zou, Cheng Lin, Yinjia Zhang, and Qinpei Zhao
  The 32th International Conference on Tools with Artificial Intelligence (ICTAI 2020). Acceptance Rate: 25%.
  Oral Presentation. [Paper] [Slide]
- **A Survey on Application of Knowledge Graph**
  Xiaohan Zou
  The 5th International Conference on Control Engineering and Artificial Intelligence (CCEAI 2020) [Paper]

Research Experience

Food Image Aesthietic Captioning, Tongji University   04/2020 – 06/2020

Advisor: Prof. Qinpei Zhao

Worked on generating critiques related to art and aesthetics for food images. **Our work has been accepted to ICTAI.**

- Proposed a novel compositional framework consisting of a single-attribute captioning module and an unsupervised text summarization module for generating comprehensive aesthetic captions for food images.
- Constructed a dataset containing food images with their captions of up to 6 aesthetic attributes for this new task.
- Introduced two new evaluation criteria to assess the novelty and diversity of the generated captions.
- Experiments on the proposed dataset showed that our method outperforms baselines and existed methods substantially in terms of diversity, novelty and coherence.

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

Advisor: Prof. Qingfeng Du

Worked on building fault diagnosis system for microservice architectures. Our work was supported by Huawei.

- Represented the services of a cloud platform and the causal relationships between them by a causal graph against the observed performance metrics dynamically using PC algorithm.
- Identified the culprit services when an anomaly occurs using a heuristic investigation algorithm based on random walk.
- Fault injection experiments showed that our method achieves higher identification accuracy and speed when compared to traditional approaches, without any expert knowledge.
- Visualized our results using Spring Boot, Vue and D3.js.

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

Advisor: Prof. Tong Lin

Worked on semi-supervised machine translation using structure duality.

- Proposed a dual learning framework based on shared hidden space which can 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.
- Our method 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.

Selected Projects

Speech Emotion Recognition   04/2019 – 06/2019

Work done at Tongji University. Advisor: Prof. Qingfeng Du

- 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).
- The project is open source on Github and got 130 stars by 11/2020.

Chatbot: A Chatbot Aimed at Providing Stock and Weather Information   10/2018 – 11/2018

Work done at Massachusetts Institute of Technology (Remote). Advisor: Dr. Fan Zhang

- Built a chatbot which can identify and analyze the intentions of users and provide stock and weather information using RasaNLU.
- Implemented the intention classifier and named entity recognizer based on SVM using spaCy and scikit-learn.
- Implemented multi-turn dialogue using finite state automaton.
- Integrated the chatbot to WeChat and QQ for a better user interface.

PROFESSIONAL EXPERIENCE

Software Engineer Intern, Acoustic-Optic-Electronic Co., LTD. of Chine Electronics Technology Group Corporation, Chongqing, China   10/2020 – Present

- Developing ancient handwritten Chinese OCR system based on Tesseract.
- Participated in equipment selection for a smart waste management project.

Research Assistant, Peking University, Beijing, China (Remote)   09/2020 – Present

Topic: Continual Learning and Meta Learning. Advisor: Tong Lin

Game Engineer Intern, Banana Interactive, Shanghai, China   10/2019 – 05/2020

Banana Interactive is a startup game company focusing on online social games.

- Worked mainly on developing H5 games on Facebook.
- Participated in the design, development, testing, deployment and improvement of 3 games.
- Ported a game packaging and deployment tool from Windows to Linux and MacOS.

SELECTED AWARDS AND HONORS

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

- Responsible for the management of related affairs of the club.
- Gave lectures about data structure and algorithms as well as their applications in machine learning on technology courses.

SKILLS

Programming Languages: Python, JavaScript, HTML/CSS, C/C++, Java, MATLAB
Tools and Frameworks: Git, PyTorch, Keras, Linux, Vue, Django, LaTeX
Languages: Chinese (native), English (proficient, TOFFEL: 106, GRE: 322)