

# 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, et al.

## PUBLICATIONS AND SUBMITTED MANUSCRIPTS

- **Xiaohan Zou**, Cheng Lin, Yinja Zhang, and Qinpei Zhao. "To be an Artist: Automatic Generation on Food Image Aesthetic Captioning", The 32th 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", The 5th International Conference on Control Engineering and Artificial Intelligence, **CCEAI 2020** [[Paper](#)]

## RESEARCH EXPERIENCE

**Food Image Aesthetic Captioning**, Tongji University, [Link](#)

04/2020 – 06/2020

Advisor: Prof. [Qinpei Zhao](#)

Worked on generating critiques related to art and aesthetics for food images, **published in 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
- 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

Advisor: Prof. [Qingfeng Du](#)

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 Bayesian network against the observed performance metrics dynamically using PC algorithm
- Identified the culprit microservices when an anomaly occured using random walk
- Fault injection experiments showed that our method outperformed traditional approaches with 6.56% identification accuracy improvement, without any expert knowledge

**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 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

## SELECTED 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

**Metallic:** A lightweight and modularized PyTorch meta-learning library, [Github](#) 10/2020 – Present

- Implemented 7 meta-learning algorithms (supported almost all commonly used optimizers) and data loaders for popular datasets with complete documentation

**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 200 [Github](#) stars

## PROFESSIONAL EXPERIENCE

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

- Visualized Sanxingdui's 3D excavation site and sensor data using Cesium and Vue
- 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

- Participated in the development, updating and testing of 3 H5 games using JavaScript and Construct 3, developed and maintained a skin system, shop system and item system
- Ported a game packaging and deployment tool from Windows to Linux and MacOS

## SELECTED AWARDS AND HONORS

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**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

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**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.

## SKILLS

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

**Tools and Frameworks:** Git, PyTorch, Keras, Linux, Vue, Django,  $\text{\LaTeX}$

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