Xiaohan Zou

+86 183-2196-8867
xiaohan.zou@foxmail.com
renovamen.ink
Renovamen

Education

Sept 2016 – Jul 2020 **Tongji University**, Shanghai, China.
B.Eng. in Software Engineering, GPA: 3.5/4.0

Research Experiences

Apr 2020 – Jun 2020 **Food Image Aesthietic Captioning**, Tongji University
Advisor: 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.

Sept 2018 – Jan 2019 **Fault Diagnosis for Microservice Architectures**, Tongji University
Advisor: 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.

Jul 2018 – Aug 2018 **Semi-Supervised Machine Translation**, Peking University
Advisor: 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

Apr 2019 – Jun 2019 **Speech Emotion Recognition**.

- 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).
- This project is open source on Github and got 120 stars by 10/2020.

Oct 2018 – Nov 2018 **Chatbot**.
Built a chatbot which can identify and analyze the intentions of users and provide stock and weather information using RasaNLU. The intention classifier and named entity recognizer were based on SVM and implemented by spaCy and scikit-learn. We implemented multi-turn dialogue using finite state automaton. We then integrated the chatbot to WeChat and QQ for a better user interface.

Publications and Submitted Manuscripts

Nov 2020 **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). Oral Presentation. Acceptance Rate: 25%.

Jan 2020 **A Survey on Application of Knowledge Graph**

Xiaohan Zou
The 5th International Conference on Control Engineering and Artificial Intelligence (CCEAI 2020)

Professional Experience

Aug 2020 – Present **Research Assistant**, Peking University
Advisor: Tong Lin .
- Working mainly on continual learning and meta learning research.

Oct 2019 – May 2020 **Game Engineer Intern**, Banana Interactive.
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

2018 **Bronze Medal**, China Collegiate Programming Contest (CCPC)
China Computer Federation (CCF) .

2018 **Finalist**, ACM International Collegiate Programming Contest (ICPC) - Asia Regional
Association for Computing Machinery (ACM) .

2017, 2018 **Second Prize**, Programming Contest Tongji University .

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

2017 **Second Prize**, Programming Contest East China Normal University .

Leadership and Activities

Vice Chief Technology Officer & Chief Experience Officer,
Microsoft Student Club (MSC), Tongji University .
- 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)

邹笑寒

+86 183-2196-8867
xiaohan.zou@foxmail.com
renovamen.ink
Renovamen

教育经历

2016.9 – 2020.7 **同济大学，软件学院**.
软件工程专业，工学学士，绩点：3.5/4.0

研究经历

2020.4 – 2020.6 **食物图像美感描述**, 同济大学
导师：赵钦佩.
为食物图像自动生成美学层面的文字评价。**该工作已被 ICTAI 接收**。

- 提出了一种新颖的模型来为食物图片生成全面的美学评价，该模型由两个模块组成，一个模块用于生成单个美学角度的评价，而另一个模块会对来自所有角度的评价进行无监督文本摘要；
- 为这个新任务构建了一个数据集，该数据集中每张食物图片都附带来自最多六个美学角度的描述；
- 提出了两种新的客观评估指标，用于评估模型生成的描述的新颖性和多样性；
- 在上述数据集上的实验显示，我们的方法在生成句子的多样性、新颖性和连贯性上都优于基线模型和现有方法。

2018.9 – 2019.1 **面向微服务架构的故障诊断系统**, 同济大学
导师：杜庆峰.
为微服务架构构建故障诊断系统，与华为合作的项目。

- 根据当前时刻监测到的云原生平台的性能指标，动态地用 PC 算法构建出因果图。图中节点表示每个微服务，有向边表示微服务之间的因果关系；
- 当出现异常时，利用随机漫步算法在因果图上搜索出可能引发该异常的故障服务；
- 故障注入实验显示，在不需要任何专家知识的情况下，相比传统方法，我们的方法能达到更高的准确率和更快的诊断速度。

2018.7 – 2018.8 **半监督机器翻译**, 北京大学
导师：林通.
利用结构对偶性来进行半监督机器翻译。

- 提出了一个基于共享隐空间的对偶学习框架，利用机器翻译模型的结构对偶性来同时提高双向任务的性能；
- 基于传统的序列到序列的神经机器翻译模型，利用不同方向的翻译器的编码器和解码器组建了额外的重构器，从而利用无标签数据；
- 在数据集 IWSLT'15（英语-越南语）和 WMT'14（英语-德语）上的实验显示，我们的方法相比基线方法取得了 1.0 - 2.9 个 BLEU 值的性能提升。提升在成对数据非常少的时候尤为明显。

部分项目经历

2019.4 – 2019.6 **语音情感识别**.

- 尝试了多种特征提取方法并构建了多个语音情感识别模型；
- 我们的模型在 CASIA（汉语）、EMODB（德语）、SAVEE（英语）、RAVDESS（英语）四个基线数据集上，相比基线模型有了 7.2 - 12.2 的准确率提升；
- 该项目已在 Github 上开源，截至 10/2020 已获得 120 个 star。

2018.10 – 2018.11 **聊天机器人**.
利用 RasaNLU 搭建了一个能识别用户意图并提供股票和天气信息的聊天机器人。意图分类和命名实体识别模型基于 SVM，用 spaCy 和 scikit-learn 实现。实现了基于有限状态自动机的多轮问询和状态切换。我们还将该机器人部署到了微信和 QQ 上，来获取更好的交互体验。

论文

2020.11 **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). Oral Presentation. Acceptance Rate: 25%.

2020.1 **A Survey on Application of Knowledge Graph**

Xiaohan Zou
The 5th International Conference on Control Engineering and Artificial Intelligence (CCEAI 2020)

工作及实习经历

2020.8 – 至今 **研究助理**, 北京大学
导师：林通.

- 主要工作为进行持续学习（Continual Learning）和元学习（Meta Learning）方向的研究。

2019.10 – 2020.6 **游戏开发实习生**, 上海伯拉乐文化科技有限公司.
上海伯拉乐文化科技有限公司是一家核心业务为在线社交游戏的初创公司。

- 主要工作为开发 Facebook 上的 H5 游戏；
- 参与了 3 款游戏的设计、开发、测试、部署和更新；
- 将公司的游戏打包与部署工具从 Windows 平台移植到了 Linux 和 MacOS 平台。

部分获奖情况

2018 **铜牌**，中国大学生程序设计竞赛（CCPC） 中国计算机协会（CCF）.

2018 **入围决赛**，ACM 国际大学生程序设计竞赛（ICPC）- 亚洲区域赛 国际计算机协会（ACM）.

2017, 2018 **二等奖**，同济大学程序设计竞赛 同济大学.

2017, 2018 **二等奖**，全国大学生数学建模竞赛（CUMCM）.

2017 **二等奖**，华东师范大学程序设计竞赛 华东师范大学.

其他活动

技术部副部长 & 产品体验部部长, 微软学生俱乐部（MSC），同济大学.

- 管理俱乐部相关事宜；
- 在技术课堂上介绍经典数据结构和算法，以及它们在机器学习中的应用。

个人技能

编程语言： Python、JavaScript、HTML/CSS、C/C++、Java、MATLAB

工具与框架： Git、PyTorch、Keras、Linux、Vue、Django、LaTeX

语言： 中文（母语）、英文（熟练，托福：106，GRE：322）