Zijiao Yang

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EDUCATION

Oregon State University — **Corvallis, USA**
Ph.D. Student in Computer Science. GPA: 3.9/4.0 — *Sep. 2020 - Present*

University of Colorado Boulder — **Boulder, USA**
Master of Science in Computer science. GPA: 3.91/4.0 — *Aug. 2018 - Aug. 2020*

Ritsumeikan University — **Kusatsu, Japan**
Bachelor of Engineering in Information Science and Engineering, Department of Human and Computer Intelligence GPA: 4.3/5.0 — *Sept. 2014 - Sept. 2016*

Dalian University of Technology — **Dalian, China**
Bachelor of Engineering in Software Engineering (Japanese Intensive) — *Sept. 2012 - Sept. 2016*

Related Courses: Computational Lexical Semantics, Machine Learning, Natural Language Processing, Convex Optimization, Bio-inspired Multi-Agent System, Principle of Numerical Computation, Statistical Data Analysis, Data Structure, Operating Systems and Compiler.

PUBLICATIONS

Behavioral Analysis of Vision-and-Language Navigation Agents
***Zijiao Yang**, Arjun Majumdar, Stefan Lee*
To appear in *Computer Vision and Pattern Recognition (CVPR), 2023.*

RESEARCH EXPERIENCE

Generating Navigation Natural Language Instructions, Oregon State University — **Corvallis, USA**
***Zijiao Yang**, Stefan Lee* — *Sept. 2021 – Feb. 2022*

- Analyze on results of different instruction generation models (Speaker model) for VLN.
- Train instruction generation model (Prevalent-Speaker) that generate instructions describing trajectories conditioned on trajectory information utilizing pre-training vision-language models (Prevalent, LXMERT).
- Devise different model architectures and achieve a reasonable qualitative result compared to previous speaker models. Conduct qualitative analysis on resulted models.

Data Augmentation for VLN Agent Training with Templated Instructions, Oregon State University — **Corvallis, USA**
***Zijiao Yang**, Arjun Majumdar, Stefan Lee* — *June. 2021 – Sept. 2021*

- Generate templated instructions for Room-to-Room (R2R) and Room-Across-Room (RxR) dataset with existing template-based tool.
- Conduct linguistic analysis on generated instructions and spot linguistic support that templated instruction should be beneficial as data augmentation.
- Modified the Recurrent-VLN-BERT accommodating RxR's path property and explored reward shaping to obtain a SR of 47.5% for English-only val-unseen setting, which is close to the 2nd place on RxR Challenge Leaderboard (at the time).
- Attempt adversarial discriminative domain adaptation techniques to resolve linguistic difference between templated instruction and VLN datasets, and to augment VLN training.

Consistent Intent and Action Generation for Subject in a Scene, Oregon State University — **Corvallis, USA**
***Zijiao Yang**, Stefan Lee* — *July. 2020 – May. 2021*

- Examine the intentions and actions of people in visual scenes.
- Train a single-stream multimodal GPT2 to generate a subject's intent and actions before and after an observed scene.
- Enforce consistency between intent and before/after actions by weighting training instances with scores based on pre-trained natural language inference model.
- Build human evaluation task on Amazon Mechanical Turk platform.

PROFESSIONAL

Reviewer, Neural Information Processing System, (NeurIPS 2022, NeurIPS 2021)

AWARDS

Lloyd Botway Fellowship, University of Colorado Boulder, 2020

- Selected as one of three outstanding master's students for excellence in research and service.

Special Encouragement Scholarship, Ritsumeikan University (full tuition waiver 2015)

SKILLS

Technical: C, Python, Matlab, Pytorch, Keras, Ruby, R Language
Language: English (fluent), Mandarin (native), Japanese (fluent).