Jiashu Xu

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EDUCATION

Harvard University *Cambridge, USA*
Master's in Computational Science and Engineering *September 2022 - June 2023*

University of Southern California *Los Angeles, USA*
B.S. in Applied Math & Computer Science, GPA: 3.97/4.0 *August 2020 - June 2022*

University of California, Irvine *Irvine, USA*
B.S. in Applied Math & Computer Science, GPA: 3.984/4.0 *September 2018 - August 2020*

Hong Kong University of Science and Technology *Hong Kong, China*
UCEAP summer study abroad, study robotics, GPA: 4.0/4.0 *June - August 2019*

Awards: Center for Undergraduate Research in Viterbi Engineering Fellowship, Jennifer Battat Scholarship, USC Transfer Merit Scholarship, USC Academic Achievement Award, USC & UCI Dean's List (all semesters)

RESEARCH INTEREST

▶ Laungrage-driven [5,6] and transparent [2,3] AI system; high-level supervisions [1,4,7]

PUBLICATION

[1] **SalKG: Learning From Knowledge Graph Explanations for Commonsense Reasoning**
Aaron Chan, **Jiashu Xu**, Boyuan Long, Soumya Sanyal, Tanishq Gupta, Xiang Ren
Conference on Neural Information Processing Systems (NeurIPS), 2021. code paper

[2] **Dissection Gesture Sequence during Nerve Sparing Predicts Erectile Function Recovery after Robot-Assisted Radical Prostatectomy**
Runzhuo Ma, **Jiashu Xu**, Ivan Rodriguez, Gina DeMeo, Aditya Desai, Loc Trinh, Jessica H. Nguyen, Anima Anandkumar, Jim C. Hu, Andrew J. Hung
American Urological Association Annual Conference (AUA), 2022. Under review. abstract

[3] **Dissection Assessment for Robotic Technique (DART) to Evaluate Nerve-Spare of Robot-Assisted Radical Prostatectomy**
Runzhuo Ma, Alvin Hui, **Jiashu Xu**, Aditya Desai, Michael Tzeng, Emily Cheng, Loc Trinh, Jessica H. Nguyen, Anima Anandkumar, Jim C. Hu, Andrew J. Hung
American Urological Association Annual Conference (AUA), 2022. Under review. abstract

[4] **Unified Semantic Typing with Meaningful Label Inference**
James Y. Huang, Bangzheng Li*, **Jiashu Xu***, Muhao Chen
North American Chapter of the Association for Computational Linguistics (NAACL), 2022.

[4] **Neural-Sim: Learning to Generate Training Data with NeRF**
Yunhao Ge, **Jiashu Xu**, Harkirat Behl, Suriya Gunasekar, Neel Joshi, Yale Song, Xin Wang, Laurent Itti,Vibhav Vineet
European Conference on Computer Vision (ECCV), 2022. Under review.

[5] **Language-Driven Compositional Context Image Synthesis for Object Detection**
Yunhao Ge, **Jiashu Xu**, Laurent Itti, Vibhav Vineet
European Conference on Computer Vision (ECCV), 2022. Under review.

[6] **EXACT: Compositional Augmentation for Image-level Weakly-Supervised Instance Segmentation**
Jiashu Xu*, Yunhao Ge*, Brian Nlong Zhao, Laurent Itti, Vibhav Vineet
Conference on Neural Information Processing Systems (NeurIPS), 2022. Under review.

[7] **X-Norm: Exchanging Normalization Parameters for Bimodal Fusion**
Jiashu Xu*, Yufeng Yin*, Tianxin Zu, Mohammad Soleymani
ACM International Conference on Multimodal Interaction (ICMI), 2022. Under review.

RESEARCH EXPERIENCE

LUKA Lab @ USC Information Sciences Institute, CURVE research fellow — *Los Angeles, USA*
Advisor: Professor Muhao Chen — *August 2021 - Present*

○ **Zero-shot Inference in Event Detection with Contextual Gloss**

- Generated contextual gloss for each event type by word sense disambiguation neural model Extractive Sense Comprehension (ESC)
- Enhanced pretrained language models' zero-shot inference capacity by providing contextual gloss as intermediate semantic-rich knowledge for labels

IHP Lab @ USC Institute for Creative Technologies, Research Assistant — *Los Angeles, USA*
Advisor: Professor Mohammad Soleymani — *August 2021 - Present*

○ **Synthetic-to-real Transfer Learning for Action Recognition**

- Experimented recently published action recognition baselines on three widely used datasets
- Explored various directions for knowledge transfer including domain adaptation and style transfer

INK Lab @ USC Information Sciences Institute, Research Assistant — *Los Angeles, USA*
Advisor: Professor Xiang Ren — *January 2021 - Present*

○ **Enhance KG-augmented Model Using Saliency Explanation**

- Implemented variants of SalKG training framework including end-to-end training using KL divergence to regularize model and introducing BCE loss for SalKG-Fine model
- Integrated CODAH and QASC datasets into codebase and conducted extensive experiments on four commonly used QA benchmarks

Melady Lab @ USC, Research Assistant — *Los Angeles, USA*
Advisor: Professor Yan Liu — *July 2021 - Present*

○ **Dissection of Gesture Sequence to Predict Erectile Function Recovery**

- Developed classification system based on long-term dependencies among robot gesture sequences of nerve-sparing, using IMV-LSTM and an attention transformer model adopted from Informer
- Introduced attention-based occlusion explanation to identify "bad smell" of subsequences of gestures that could potentially help surgeons refine skills
- Incorporating patient's clinical data into neural tabular model including AutoInt, TabTransformer and FT-Transformer and achieved 64 AUC on holdout dataset with solely clinical features

WORK & TEACHING EXPERIENCE

Learning Assistant — *Los Angeles, USA*
CSCI 567: Machine Learning with Professor Haipeng Luo — *Fall 2021*

- Held Office Hours, monitored piazza to answer students' questions regarding math and code implementation and graded homework and projects

Teach for Los Angeles — *Los Angeles, USA*
Mentor — *Spring 2021*

- Tutored middle school students from LA K-12 community 1-on-1 on mathematics two hours every week
- Inspired students to reach full math potential in preparation for college and STEM careers

Johnson & Johnson — *Shanghai, China*
Digital & Analytics Data Assistant — *Summer 2019*

- Tracked counterfeit products or parallel products from various sales channels using NLP techniques including semantic role labeling and named entity recognition
- Devised context extractor based on Jieba tokenizer and Chinese word vectors
- Presented in PCS 2019 medicine CIO summit about NLP approach for tracking counterfeit products

Math CEO — *Irvine, USA*
Mentor — *Fall 2018 - Spring 2020*

- Coordinated meetings with Santa Ana middle school students and taught mathematical thinking