

# Jiashu Xu

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## EDUCATION

### University of Southern California

B.S. in Applied Math & Computer Science, GPA: 3.97/4.0

Los Angeles, USA

August 2020 - June 2022

### University of California, Irvine

B.S. in Applied Math & Computer Science, GPA: 3.984/4.0

Irvine, USA

September 2018 - August 2020

### Hong Kong University of Science and Technology

UCEAP summer study abroad, study robotics, GPA: 4.0/4.0

Hong Kong, China

June - August 2019

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

## RESEARCH INTEREST

▶ Transparent and robust AI system in NLP domain; high-level supervisions for model regularization

## 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](#)

## 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
- Achieved comparable performance in MAVEN dataset with no training samples

### 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
- Led SalKG ablations study and built low-resource (10%, 30% and 50% of training data) pipeline

**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
- Conducted extensive experiments, used TPE sampler to search for best optimal hyperparameters and achieved 80.76 AUC on holdout dataset
- Introduced explanation which integrated attention mechanism and occlusion-based explanation and utilized such directionality 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

**USC Information Sciences Institute**, Research Assistant

*Los Angeles, USA*

*Advisor: Dr. Keith Burghardt*

*February - August 2021*

○ **Folklore Stories Semantic Tagging**

- Curated folklore dataset that consists of 1892 unique stories based on Aarne–Thompson–Uther Index
- Developed transformer-based tagging system that automatically infers folklore’s motif with the accuracy of 81%, and generated folklore semantic representations by contrastive learning that minimize intra-domain distance and maximize inter-domain embedding alignments

## WORK & TEACHING EXPERIENCE

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**Learning Assistant**

*Los Angeles, USA*

*CSCI 567: Machine Learning with Professor Haipeng Luo*

*August – December 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*

*January - June 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*

*August - September 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*

*September 2018 - August 2020*

- Coordinated meetings with Santa Ana middle school students and taught mathematical thinking
- Devised intriguing math problems and puzzles for students

## SKILLS

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Programming Languages: Python, Scala, Java, {Java, Type}Script, C, C++, R, Matlab, Mathematica, VBA, Node.js, MongoDB, MariaDB, Kotlin

Toolkits: Pytorch, Numpy, Keras, TensorFlow, React, Zsh & Bash, Spring, Vim, GCC, Slurm