Jiali Duan (段佳利)

Phone: (+1) 213-2040-380
Email: jli.duan@gmail.com
Academic: https://davidsonic.github.io/index/

Research Interests

3D Vision, Multimodal representation learning, Recommendations, Adversarial Reinforcement Learning

Education

University of Southern California — Los Angeles, USA
PhD. Electrical Engineering — Sep. 2017 – May. 2021
Advisor: Prof. C.-C-Jay Kuo
Co-Advisor: Prof. Stefanos Nikolaidis

University of Chinese Academy of Sciences — Beijing, China
M.S. Computer Science — Sep. 2014 – Jul. 2017
Advisor: Prof. Stan Z. Li (Institute of Automation, Chinese Academy of Sciences)

- 2017 Presidential Award of University of Chinese Academy of Sciences (Top %1 UCAS)
- 2017 Excellent Graduate of Beijing (Top %1 Beijing graduates)
- 2017 Outstanding Graduation Thesis in University of Chinese Academy of Sciences (Top %1 UCAS)

Publications

Representation Learning

- **Jiali Duan*,** Liqun Chen*, Son Tran, Jinyu Yang, Yi Xu, Zeng Belinda, Trishul Chilimbi. “Multi-modal Alignment using Representation Codebook”. CVPR 2022
- Jinyu Yang, **Jiali Duan,** Son Tran, Liqun Chen, Yi Xu, Zeng Belinda, Trishul Chilimbi. “Multi-modal Representation Learning with Triple Contrastive Learning”. CVPR 2022
- Xiaoyuan Guo*, **Jiali Duan*,** C.-C. Jay Kuo, Judy Gichoya, Imon Banerjee. “Augmenting Vision Language Pretraining by Learning Codebook with Visual Semantics”. ICPR 2022
- Xiaoyuan Guo, **Jiali Duan**, Saptarshi Purkayastha, Hari Trivedi, Judy Gichoya, Imon Banejee. “OSCARS: An Outlier-Sensitive Content-Based Radiography Retrieval System”. ICMR 2022 (**Oral**)
- **Jiali Duan**, Yen-Liang Lin, Son Tran, Larry Davis, C.-C. Jay Kuo. “SLADE: A Self-Training Framework for Distance Metric Learning”. CVPR 2021
- **Jiali Duan**, C.-C. Jay Kuo. “Bridging Gap between Image Pixels and Semantics via Supervision: A Survey ”. APSIPA 2021
- **Jiali Duan,** Xiaoyuan Guo, Son Tran, C.-C. Jay Kuo. "Explainable Fashion Compatibility Recommendation via Unsupervised Latent Attribute Discovery". Technical Report 2021
- **Jiali Duan,** Xiaoyuan Guo, Son Tran, C.-C. Jay Kuo. "Fashion Compatibility Recommendation via Unsupervised Metric Graph Learning". SCMLS 2020

Adversarial & Reinforcement Learning

- **Jiali Duan*,** Qian Wang*, Lerrel Pinto, C.-C. Jay Kuo, Stefanos Nikolaidis. "Robot Learning via Human Adversarial Games". IROS 2019 (**Best Paper Finalist**)
- **Jiali Duan**, Qian Wang, Lerrel Pinto, C.-C. Jay Kuo and Stefanos Nikolaidis. "Robust Grasping via Human Adversary". SCR 2019 (Spotlight)
- **Jiali Duan**, Yilei Zeng, Jiali Duan, Emilio Ferrara, Lerrel Pinto, C.-C. Jay Kuo, Stefanos Nikolaidis. "Curriculum Reinforcement Learning Guided by Human". CoRR 2020.
- **Jiali Duan,** Xiaoyuan Guo, C.-C. Jay Kuo. “PortraitGAN for Flexible Portrait Manipulation”. APSIPA 2020
- Dongsheng Ding, Kaiqing Zhang, **Jiali Duan**, Tamer Basar, Mihailo R. Jovanovic. “Convergence and Sample Complexity of Natural Policy Gradient Primal-Dual Methods for Constrained MDPs”. JMLR under review.

Generic Computer Vision Tasks

- **Jiali Duan**, Shuai Zhou, Jun Wan, Xiaoyuan Guo, Stan Z.Li. A Unified Framework for Multi-Modal Isolated Gesture Recognition. ACM-TOMM, 2017
- **Jiali Duan**, Shengcai Liao, Shuai Zhou, Stan Z. Li. Face Classification, A Specialized Benchmark Study. CCBR (**Best Student Paper),** 2016
- **Jiali Duan**, Shengcai Liao, Xiaoyuan Guo, Stan Z. Li. Face Detection by Aggregating Visible Components. ACCVW (**Oral**), 2016
- Yao Zhu, Saksham Suri, Pranav Kulkarni, Yueru Chen, **Jiali Duan**, C.-C. Jay Kuo. "An Interpretable Generative Model for Handwritten Digit Image Synthesis". ICIP 2019
- C.-C. Jay Kuo, Min Zhang, Siyang Li, **Jiali Duan**, Yueru Chen. Interpretable Convolutional Neural Networks via Feedforward Design. JVCI 2018 (**Best Paper Award**)

Work Experience

FAIR Labs, Meta AI. Menlo Park, USA
Role: Research Scientist June. 2022 - Present
Responsibility: Research on 3D vision and representation learning.

Amazon M5 Core Modeling, Search Science & AI Palo Alto, USA
Role: Applied Scientist II Oct. 2021 - June. 2022
Manager: Son Tran (Principal Applied Scientist)
Responsibility: Work on M5 core modeling within Search Science & AI, which is a cross-org endeavor to improve multimodal representation learning, query understanding and search quality across Amazon. Published 2 papers to CVPR 2022.

Amazon Visual Search & AR Palo Alto, USA
Role: Applied Scientist II June. 2021 - Sep. 2021
Manager: Son Tran (Principal Applied Scientist)
Responsibility: Work on StyleSnap related projects at Visual Search&AR Team. My job focuses on improving detailed product page recommendation with self-supervised learning and vision-language pretraining.

Amazon A9 Palo Alto, USA
Role: Applied Scientist Intern May. 2020 - Jan. 2021
Mentor: YenLiang Lin (Applied Scientist)
Manager: Son Tran (Principal Applied Scientist)
Responsibility: Propose and implement one of the earliest semi-supervised deep metric learning framework that scales with unlabeled data. Our work significantly improves SOTA under both fractional and full labeled-data setting on three public benchmarks. The work in this internship was accepted to CVPR 2021.

Sensetime Beijing Beijing, China
Role: Applied Scientist Intern Apr. 2017 - Jul. 2017
Mentor: Jianping Shi (Executive Research Director)
Responsibility: Focus on instance-segmentation and model deployment.

AuthenMetric Beijing, China
Role: Research Assistant Sep. 2015 - Mar. 2016
Mentor: Professor Stan.Z.Li
Responsibility: Focus on face-analysis related products including face detection, segmentation, and recognition.

Media Coverage

- **Nov. 30, 2019, Express:** AI breakthrough: Showing Machine Learning Robots 'Tough Love' Helps Them Improve (https://www.express.co.uk/news/science/1210543/ai-artificial-intelligence-machine-learning-robots-tough-love-helps-them-improve).
- **Nov.06, 2019, Wired:** If You Want a Robot to Learn Better, Be a Jerk to It (https://www.wired.com/story/if-you-want-a-robot-to-learn-better-be-a-jerk-to-it/).
- **Nov.06, 2019, Daily Mail:** Tough Love! (https://www.dailymail.co.uk/sciencetech/article-7656667/Tug-war-New-research-finds-robots-learn-effectively-humans-provide-physical-resistance.html)
- **Nov.06, 2019, USC News:** Showing Robots 'Tough Love' Helps them Succeed, Finds New USC Study (https://viterbischool.usc.edu/news/2019/11/showing-robots-tough-love-helps-them-succeed-finds-new-usc-study/).

Competition

- 2013 Honorable Mention in MCM/ICM Math Modeling Contest for American College Students
- 2012 First Prize in Mathematical Modeling Contest in Shanghai.
- 2012 Outstanding Prize in 21st Century Coca-Cola National English Speaking Contest Shanghai Region
- 2012 Second Prize in National Mathematical Modeling Contest in China.