Yixin Zhu **June 1, 2022**

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RESEARCH INTERESTS

Computer Vision	Functionality, Physics, Intention, Causal Reasoning, Analogy
Robotics	Functional Manipulation, Human-Robot Interaction
Computer Graphics	Physics-based Simulation
Cognition	Intuitive Physics, Causality

EDUCATION

Ph.D. in Statistics, UCLA April 2018
Advisor: Prof. Song-Chun Zhu. Funded by
- DARPA XAI N66001-17-2-4029
  Learning and Communicating Explainable Representations for Analytics and Autonomy
- ONR MURI N00014-16-1-2007
  Understanding Scenes and Events through Joint Parsing, Cognitive Reasoning and Lifelong Learning
- DARPA SIMPLEX N66001-15-C-4035
  Learning Homogeneous Knowledge Representation from Heterogeneous Data for Quantitative and Qualitative Reasoning in Autonomy
- DARPA MSEE FA 8650-11-1-7149
  MSEE on a Unified Foundation for Representation, Inference and Learning
- ONR MURI N00014-10-1-0933
  Knowledge Representation, Reasoning and Learning for Understanding Scenes and Events
- NSF IIS-1423305
  Inferring the "Dark Matter" and "Dark Energy" from Image and Video

M.S. in Computer Science, UCLA December 2013
B.E. in Software Engineering, Xi'an Jiaotong University, China July 2012

EXPERIENCES

Assistant Professor, Institute for Artificial Intelligence, PKU May 2021 - present
Executive Research Director, BIGAI April 2021 - March 2022
Postdoctoral Scholar, UCLA April 2018 - April 2021
ONR MURI on Scene Understanding
DARPA XAI
ONR Cognitive Systems for Human-Machine Teaming
Board of Director, CARA, 501(c)(3) non-profit February 2018 - March 2021
Visiting Scholar, Penn Computer Graphics Group December 2019 - February 2020
Host: Prof. Chenfanfu Jiang
Research Director, DMAI, Inc. January 2018 - August 2019
VP of Operations, DMAI, Inc. October 2018 - August 2019
Graduate Research Assistant, UCLA March 2013 - April 2018
Advisor: Prof. Song-Chun Zhu
Visiting Student, Penn Computer Graphics Group July 2017
Host: Prof. Chenfanfu Jiang
Research Intern, Harvard Medical School Summer 2012
Mentor: Prof. Gil Alterovitz
UCLA-CSST Program Summer 2011
Advisor: Prof. Todd Millstein

AWARDS AND SCHOLARSHIPS

Best Paper Award Finalist, IROS 2020
Outstanding Reviewer, CVPR 2017, 2019
Best Paper Award, ACM TURC 2019
GPU Donation Program for Researchers, Nvidia 2018
Outstanding Statistician Award, UCLA Statistics Department 2018

RAS Travel Award, ICRA	2018
Doctoral Student Travel Award, UCLA	2017
Doctoral Student Travel Award, UCLA Statistics Department	2017, 2018
Sponsorship for VisionMeetsCognition Workshop at CVPR, Intel	2017
Fellowship, University of California, Los Angeles	2015 - 2018
CUDA Hardware Donation Program for Researchers, Nvidia	2014
Google Scholarship, Google	2011
UCLA–CSST Scholarship, University of California, Los Angeles	2011
Samsung Scholarship, Samsung	2010

Preprints

⋆ denotes equal contribution

[6] G. Jiang⋆, M. Xu⋆, S.-C. Zhu, W. Han, C. Zhang, and **Y. Zhu**.
MPI: Evaluating and Inducing Personality in Pre-trained Language Models.
arXiv:2206.07550.

[5] C. Xu, Y. Chen, H. Wang, S.-C. Zhu, **Y. Zhu**, and S. Huang.
PartAfford: Part-level Affordance Discovery from 3D Objects.
arXiv:2202.13519.

[4] S. Qiu⋆, S. Xie⋆, L. Fan, T. Gao, S.-C. Zhu, and **Y. Zhu**.
Emergent Graphical Conventions in a Visual Communication Game.
arXiv:2111.14210.

[3] C. Zhang⋆, S. Xie⋆, B. Jia⋆, Y. N. Wu, S.-C. Zhu, and **Y. Zhu**.
Learning Algebraic Representation for Systematic Generalization in Abstract Reasoning.
arXiv:2111.12990.

[2] Q. Li, S. Huang, Y. Hong, **Y. Zhu**, Y. N. Wu, and S.-C. Zhu.
A HINT from Arithmetic: On Systematic Generalization of Perception, Syntax, and Semantics.
arXiv:2103.01403.

[1] S. Xie, X. Ma, P. Yu, **Y. Zhu**, Y. N. Wu, and S.-C. Zhu.
HALMA: Humanlike Abstraction Learning Meets Affordancein Rapid Problem Solving.
arXiv:2102.11344.

Journal Publications

⋆ denotes equal contribution

[11] Y. Su, Y. Jiang, **Y. Zhu**, H. Liu.
Object Gathering with a Tethered Robot Duo.
IEEE Robotics and Automation Letters (RA-L) 7.2 (2022).
doi:10.1109/LRA.2022.3141828

[10] T. Liu, Z. Liu, Z. Jiao, **Y. Zhu**✉, and S.-C. Zhu.
Synthesizing Diverse and Physically Stable Grasps with Arbitrary Hand Structures using Differentiable Force Closure Estimator.
IEEE Robotics and Automation Letters (RA-L) 7.1 (2022).
doi:10.1109/LRA.2021.3129138

[9] H. Liu, **Y. Zhu**✉, and S.-C. Zhu.
Patching interpretable And-Or-Graph knowledge representation using augmented reality.
Applied AI Letters (AAIL), *DARPA XAI Special Issue*, e43 (2021).
doi:10.1002/ail2.43

[8] Y. Li, X. Li, M. Li, **Y. Zhu**, B. Zhu, and C. Jiang.
Lagrangian-Eulerian Multi-Density Topology Optimization with the Material Point Method.
International Journal for Numerical Methods in Engineering (2021).
doi:10.1002/nme.6668

[7] **Y. Zhu**✉, T. Gao, L. Fan, S. Huang, M. Edmonds, H. Liu, F. Gao, C. Zhang, Q. Si, Y. N. Wu, J. B. Tenenbaum, and S.-C. Zhu.
Dark, Beyond Deep: A Paradigm Shift to Cognitive AI with Humanlike Common Sense.

Engineering, *Special Issue on Artificial Intelligence* 6.3 (2020): 310-345.
doi:10.1016/j.eng.2020.01.011

[6] X. Wang*, Y. Qiu*, S. Slattery, Y. Fang, M. Li, S.-C. Zhu, **Y. Zhu**, M. Tang, D. Manocha, C. Jiang.
A Massively Parallel and Scalable Multi-GPU Material Point Method.
ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH) 39.4 (2020).
doi:10.1145/3386569.3392442

[5] Y. Fang*, Z. Qu*, M. Li, X. Zhang, **Y. Zhu**, M. Aanjaneya, C. Jiang.
IQ-MPM: An Interface Quadrature Material Point Method for Non-sticky Strongly Two-Way Coupled Nonlinear Solids and Fluids. [Technical Papers Preview Trailer Cover]
ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH) 39.4 (2020).
doi:10.1145/3386569.3392438

[4] M. Edmonds*✉, F. Gao*, H. Liu*, X. Xie*, S. Qi, B. Rothrock,
Y. Zhu✉, Y. N. Wu, H. Lu, and S.-C. Zhu✉.
A tale of two explanations: Enhancing human trust by explaining robot behavior.
Science Robotics 4.37 (2019).
doi:10.1126/scirobotics.aay4663

[3] C. Jiang*, S. Qi*, **Y. Zhu***✉, S. Huang*,
Jenny Lin, Lap-Fai Yu, D. Terzopoulos, and S.-C. Zhu.
Configurable 3D Scene Synthesis and 2D Image Rendering with Per-Pixel Ground Truth using Stochastic Grammars.
International Journal of Computer Vision (IJCV) 126.9 (2018): 920-941.
doi:10.1007/s11263-018-1103-5

[2] Y. Hu, Y. Fang, Z. Ge, Z. Qu, **Y. Zhu**, A. Pradhana, and C. Jiang.
A Moving Least Squares Material Point Method with Displacement Discontinuity and Two-Way Rigid Body Coupling.
ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH) 37.4 (2018).
doi:10.1145/3197517.3201293

[1] T. Ye*, S. Qi*, J. Kubricht, **Y. Zhu**, H. Lu, and S.-C. Zhu.
The Martian: Examining Human Physical Judgments Across Virtual Gravity Fields.
Invited Talk at IEEE VR 2017 and VRLA 2017.
IEEE Transactions on Visualization and Computer Graphics (TVCG) 23.4 (2017): 1399-1408.
doi:10.1109/TVCG.2017.2657235

Conference Publications

* denotes equal contribution

[51] P. Yu, S. Xie, X. Ma, B. Jia, B. Pang, R. Gao, **Y. Zhu**, Y. N. Wu, and S.-C. Zhu.
Latent Diffusion Energy-Based Model for Interpretable Text Modeling.
International Conference on Machine Learning (ICML), 2022.

[50] K. Jiang, A. Dahmani, S. Stacy, B. Jiang, F. Rossano, **Y. Zhu**, and T. Gao.
What Is the Point? A Theory of Mind Model of Relevance.
Annual Conference of the Cognitive Science Society (CogSci), 2022.

[49] P. Yu, S. Xie, X. Ma, **Y. Zhu**, Y. N. Wu, and S.-C. Zhu.
Unsupervised Foreground Extraction via Deep Region Competition.
Neural Information Processing Systems (NeurIPS), 2021.

[48] S. Huang, Y. Xie, S.-C. Zhu, **Y. Zhu**.
Spatio-temporal Self-Supervised Representation Learning for 3D Point Clouds.
International Conference on Computer Vision (ICCV), 2021.

[47] Y. Chen, Q. Li, D. Kong, Y.-L. Kei, T. Gao, **Y. Zhu**, S.-C. Zhu, S. Huang.
YouRefIt: Embodied Reference Understanding with Language and Gesture. [Oral]
International Conference on Computer Vision (ICCV), 2021.

[46] Z. Jiao*, Z. Zhang*, X. Jiang, D. Han, S.-C. Zhu, **Y. Zhu**, and H. Liu.
Consolidated Kinematic Models Promote Coordinated Mobile Manipulations. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2021.

[45] Z. Jiao*, Z. Zhang*, W. Wang, D. Han, S.-C. Zhu, **Y. Zhu**, and H. Liu.
Efficient Task Planning for Mobile Manipulation: a Virtual Kinematic Chain Perspective. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2021.

[44] Q. Wu, C. Wi, **Y. Zhu**, and J. Joo.
Communicative Learning via Instructional Gestures for Embodied Navigation Agents. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2021.

[43] K. Jiang, S. Stacy, C. Wei, A. Chan, F. Rossano, **Y. Zhu**, and T. Gao.
Individual vs. Joint Perception: a Pragmatic Model of Pointing as Communicative Smithian Helping.
Annual Conference of the Cognitive Science Society (CogSci), 2021.

[42] Z. Zheng, S. Qiu, L. Fan, **Y. Zhu**, and S.-C. Zhu.
GRICE: *A Grammar-based Dataset for Recovering Implicature and Conversational rEasoning.*
Findings of the Association for Computational Linguistics (ACL-Findings), 2021.

[41] L. Fan*, S. Qiu*, Z. Zheng, T. Gao, S.-C. Zhu, and **Y. Zhu**.
Learning Triadic Belief Dynamics in Nonverbal Communication from Videos. [Oral]
Computer Vision and Pattern Recognition (CVPR), 2021.

[40] C. Zhang*, B. Jia*, S.-C. Zhu, and **Y. Zhu**.
Abstract Spatial-Temporal Reasoning via Probabilistic Abduction and Execution.
Computer Vision and Pattern Recognition (CVPR), 2021.

[39] C. Zhang, B. Jia, M. Edmonds, S.-C. Zhu, and **Y. Zhu**.
ACRE: Abstract Causal REasoning Beyond Covariation.
Computer Vision and Pattern Recognition (CVPR), 2021.

[38] M. Han*, Z. Zhang*, Z. Jiao, X. Xie, **Y. Zhu**, S.-C. Zhu, and H. Liu.
Reconstructing Interactive 3D Scenes via Panoptic Mapping and Physical Reasoning. [Oral]
International Conference on Robotics and Automation (ICRA), 2021.

[37] X. Xie, C. Zhang, **Y. Zhu**, Y. N. Wu, and S.-C. Zhu.
Congestion-aware Multi-agent Trajectory Prediction for Collision Avoidance. [Oral]
International Conference on Robotics and Automation (ICRA), 2021.

[36] B. Jia, Y. Chen, S. Huang, **Y. Zhu**, and S.-C. Zhu.
LEMMA: A Multi-view Dataset for Learning Multi-agent Multi-task Activities.
European Conference on Computer Vision (ECCV), 2020.

[35] Z. Zhang, **Y. Zhu**, and S.-C. Zhu.
Graph-based Hierarchical Knowledge Representation for Robot Task Transfer from Virtual to Physical World. [Best Paper Finalist]
International Conference on Intelligent Robots and Systems (IROS), 2020.

[34] S. Qiu, H. Liu, Z. Zhzng, **Y. Zhu**, and S.-C. Zhu.
Human-Robot Interaction in a Shared Augmented Reality Workspace. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2020.

[33] T. Yuan, H. Liu, L. Fan, Z. Zheng, T. Gao, **Y. Zhu**, and S.-C. Zhu.
Joint Inference of States, Robot Knowledge, and Human (False-)Beliefs. [Oral]
International Conference on Robotics and Automation (ICRA), 2020.

[32] Z. Zhang, H. Liu, Z. Jiao, **Y. Zhu**, and S.-C. Zhu.
Congestion-aware Evacuation Routing using Augmented Reality Devices. [Oral]
International Conference on Robotics and Automation (ICRA), 2020.

[31] M. Edmonds, X. Ma, S. Qi, **Y. Zhu**, H. Lu, and S.-C. Zhu.
Theory-based Causal Transfer: Integrating Instance-level Induction and Abstract-level Structure

Learning. [Oral]
AAAI Conference on Artificial Intelligence (AAAI), 2020.

[30] W. Zhang, C. Zhang, **Y. Zhu**, and S.-C. Zhu.
Machine Number Sense: Abstract Symbolic-Processing and Concrete Problem-Solving. [Oral]
AAAI Conference on Artificial Intelligence (AAAI), 2020.

[29] C. Zhang, B. Jia, F. Gao, **Y. Zhu**, H. Lu, and S.-C. Zhu.
Learning Perceptual Inference by Contrasting. [Spotlight]
Neural Information Processing Systems (NeurIPS), 2019.

[28] S. Huang, Y. Chen, T. Yuan, S. Qi, **Y. Zhu**, and S.-C. Zhu.
3D Object Detection from a Single RGB Image via Perspective Points.
Neural Information Processing Systems (NeurIPS), 2019.

[27] Y. Chen*, S. Huang*, T. Yuan, **Y. Zhu**, S. Qi, and S.-C. Zhu.
Holistic^{++} Scene Understanding: Single-view 3D Holistic Scene Parsing and Human Pose Estimation with Human-Object Interaction and Physical Commonsense.
International Conference on Computer Vision (ICCV), 2019.

[26] X. Xie*, C. Li*, C. Zhang, **Y. Zhu**, and S.-C. Zhu.
Learning Virtual Grasp with Failed Demonstrations via Bayesian Inverse Reinforcement Learning. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2019.

[25] M. Edmonds, S. Qi, **Y. Zhu**, J. Kubricht, S.-C. Zhu, and H. Lu.
Decomposing Human Causal Learning: Bottom-up Associative Learning and Top-down Schema Reasoning.
Annual Conference of the Cognitive Science Society (CogSci), 2019.

[24] C. Zhang*, F. Gao*, B. Jia, **Y. Zhu**, and S.-C. Zhu.
RAVEN: A Dataset for Relational and Analogical Visual rEasoNing.
Computer Vision and Pattern Recognition (CVPR), 2019.

[23] X. Xie, H. Liu, Z. Zhang, Y. Qiu, F. Gao, S. Qi, **Y. Zhu**, and S.-C. Zhu.
VRGym: A Virtual Testbed for Physical and Interactive AI. [Best Paper]
ACM Turing Celebration Conference (TURC), 2019.

[22] H. Liu*, Z. Zhang*, X. Xie, **Y. Zhu**, Y. Liu, Y. Wang, and S.-C. Zhu.
High-Fidelity Grasping in Virtual Reality using a Glove-based System.
International Conference on Robotics and Automation (ICRA), 2019.

[21] H. Liu*, Z. Zhang*, **Y. Zhu**, and S.-C. Zhu.
Self-Supervised Incremental Learning for Sound Source Localization in Complex Indoor Environment.
International Conference on Robotics and Automation (ICRA), 2019.

[20] H. Liu, C. Zhang, **Y. Zhu**, C. Jiang, and S.-C. Zhu.
Mirroring without Overimitation: Learning Functionally Equivalent Manipulation Actions. [Spotlight]
AAAI Conference on Artificial Intelligence, 2019.

[19] C. Zhang, **Y. Zhu**, and S.-C. Zhu.
MetaStyle: Three-Way Trade-Off Among Speed, Flexibility and Quality in Neural Style Transfer. [Spotlight]
AAAI Conference on Artificial Intelligence, 2019.

[18] S. Huang, S. Qi, Y. Xiao, **Y. Zhu**, Y. N. Wu, and S.-C. Zhu.
Cooperative Holisctic Scene Understanding: Unifying 3D Object, Layout, and Camera Pose Estimation.
Neural Information Processing Systems (NeurIPS), 2018.

[17] S. Huang, S. Qi, **Y. Zhu**, Y. Xiao, Y. Xu, and S.-C. Zhu.
3D Scene Parsing and Reconstruction from a Single RGB Image via Holistic Scene Grammar.

European Conference on Computer Vision (ECCV), 2018.

[16] M. Edmonds*, J. Kubricht*, C. Summers, **Y. Zhu**, B. Rothrock, S.-C. Zhu, and H. Lu.
Human Causal Transfer: Challenges for Deep Reinforcement Learning. [Oral]
Annual Conference of the Cognitive Science Society (CogSci), 2018.

[15] S. Qi, **Y. Zhu**, S. Huang, C. Jiang, and S.-C. Zhu.
Human-centric Indoor Scene Synthesis using Stochastic Grammar.
Computer Vision and Pattern Recognition (CVPR), 2018.

[14] H. Liu*, Y. Zhang*, W. Si, X. Xie, **Y. Zhu**, and S.-C. Zhu.
Interactive Robot Knowledge Patching using Augmented Reality.
International Conference on Robotics and Automation (ICRA), 2018.

[13] X. Xie*, H. Liu*, M. Edmonds, F. Gao, S. Qi, **Y. Zhu**, B. Rothrock, and S.-C. Zhu.
Unsupervised Learning of Hierarchical Models for Hand-Object Interactions using Tactile Glove.
International Conference on Robotics and Automation (ICRA), 2018.

[12] D. Wang*, J. Kubricht*, **Y. Zhu***, W. Liang, S.-C. Zhu, C. Jiang, and H. Lu.
Spatially Perturbed Collision Sounds Attenuate Perceived Causality in 3D Launching Events. [Oral]
IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR), 2018.

[11] W. Liang, **Y. Zhu**, and S.-C. Zhu.
Tracking Occluded Objects and Recovering Incomplete Trajectories by Reasoning about Containment Relations and Human Actions. [Spotlight]
AAAI Conference on Artificial Intelligence (AAAI), 2018.

[10] M. Edmonds*, F. Gao*, X. Xie, H. Liu, **Y. Zhu**, B. Rothrock, and S.-C. Zhu.
Feeling the Force: Integrating Force and Pose for Fluent Discovery through Imitation Learning to Open Medicine Bottles. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2017.

[9] H. Liu*, X. Xie*, M. Millar*, M. Edmonds, F. Gao, **Y. Zhu**, V. J. Santos, B. Rothrock, and S.-C. Zhu.
A Glove-based System for Studying Hand-Object Manipulation via Pose and Force Sensing. [Oral]
International Conference on Intelligent Robots and Systems (IROS), 2017.

[8] J. Kubricht*, **Y. Zhu***, C. Jiang*, D. Terzopoulos, S.-C. Zhu, and H. Lu.
Consistent Probabilistic Simulation Underlying Human Judgment in Substance Dynamics. [Oral]
Annual Conference of the Cognitive Science Society (CogSci), 2017.

[7] J Lin*, **Y. Zhu***, J. Kubricht*, S.-C. Zhu, and H. Lu.
Visuomotor Adaptation and Sensory Recalibration in Reversed Hand Movement Task.
Annual Conference of the Cognitive Science Society (CogSci), 2017.

[6] J. Lin*, X. Guo*, J. Shao*, C. Jiang, **Y. Zhu**, and S.-C. Zhu.
A Virtual Reality Platform for Dynamic Human-Scene Interaction. [Oral]
ACM SIGGRAPH Asia 2016, Workshop on Virtual Reality meets Physical Reality

[5] W. Liang, Y. Zhao, **Y. Zhu**, and S.-C. Zhu.
What is Where: Inferring Containment Relations from Videos. [Oral]
International Joint Conference on Artificial Intelligence (IJCAI), 2016.

[4] J. Kubricht*, C. Jiang*, **Y. Zhu***, S.-C. Zhu, D. Terzopoulos, and H. Lu.
Probabilistic Simulation Predicts Human Performance on Viscous Fluid-Pouring Problem. [Oral]
Annual Conference of the Cognitive Science Society (CogSci), 2016.

[3] **Y. Zhu***, C. Jiang*, Y. Zhao, D. Terzopoulos, and S.-C. Zhu.
Inferring Forces and Learning Human Utilities From Videos. [Oral]

Computer Vision and Pattern Recognition (CVPR), 2016.

[2] W. Liang, Y. Zhao, **Y. Zhu**, and S.-C. Zhu.
Evaluating Human Cognition of Containing Relations with Physical Simulation. [Oral]
Annual Conference of the Cognitive Science Society (CogSci), 2015.

[1] **Y. Zhu***, Y. Zhao*, and S.-C. Zhu.
Understanding Tools: Task-Oriented Object Modeling, Learning and Recognition.
Computer Vision and Pattern Recognition (CVPR), 2015.

Technical Reports

J. Jeon, K. Micinski, J. Vaughan, N. Reddy, **Y. Zhu**, J. Foster, and T. Millstein.
Dr. Android and Mr. Hide: Fine-grained security policies on unmodified Android.
Technical Reports of the Computer Science Department, University of Maryland, 2015

Professional Services

Conference Organization

Co-chair, Computer Vision and Pattern Recognition (CVPR) 2020 Workshop on
3D Scene Understanding for Vision, Graphics, and Robotics

Webmaster, Computer Vision and Pattern Recognition (CVPR) 2019

Co-chair, Computer Vision and Pattern Recognition (CVPR) 2019 Workshop on
3D Scene Understanding for Vision, Graphics, and Robotics

Co-chair, Computer Vision and Pattern Recognition (CVPR) 2019 Workshop on
Vision meets Cognition: Functionality, Physics, Intentionality and Causality

Co-chair, Computer Vision and Pattern Recognition (CVPR) 2018 Workshop on
Vision meets Cognition: Functionality, Physics, Intentionality and Causality

Co-chair, Computer Vision and Pattern Recognition (CVPR) 2017 Workshop on
Vision meets Cognition: Functionality, Physics, Intentionality and Causality

Co-chair, SIGGRAPH Asia 2016 Workshop on
Virtual Reality meets Physical Reality: Modelling and Simulating Virtual Humans and Environments

Co-chair, CogSci 2016 Workshop on
Physical and Social Scene Understanding

Organizer, MURI Annual Review Meeting, Zoom, 2020.
Student Organizer, MURI Annual Review Meeting, UCLA, 2017.
Student Organizer, MURI Annual Review Meeting, Lake Arrowhead, 2015.

Peer-reviewed Journals and Conferences

Journals:
Reviewer, Nature Machine Intelligence
Reviewer, Transactions on Pattern Analysis and Machine Intelligence (PAMI)
Reviewer, International Journal of Computer Vision (IJCV)
Reviewer, Transactions on Image Processing (T-IP)
Computer Vision & Graphics:
Area Chair, Computer Vision and Pattern Recognition (CVPR), 2021
Reviewer, Transactions on Visualization and Computer Graphics (TVCG)

Reviewer, Computer Vision and Pattern Recognition (CVPR), 2015-2020,2022
Reviewer, International Conference on Computer Vision (ICCV), 2015-2021
Reviewer, European Conference on Computer Vision (ECCV), 2018-2020
Reviewer, AAAI Conference on Artificial Intelligence (AAAI), 2020-2022
Reviewer, British Machine Vision Conference (BMVC), 2017-2021
Machine Learning:
Reviewer, Neural Information Processing Systems (NeurIPS), 2019-2021
Reviewer, International Conference on Learning Representations (ICLR), 2021-2022
Reviewer, International Conference on Machine Learning (ICML), 2020-2022
Robotics:
Reviewer, International Conference on Robotics and Automation (ICRA), 2020-2022
Session Chair/Reviewer, International Conference on Intelligent Robots and Systems (IROS), 2019-2021
Cognitive Science:
Reviewer, Annual Conference of the Cognitive Science Society (CogSci), 2015-2022
Human-Computer Interaction:
Reviewer, IEEE Virtual Reality and 3D User Interfaces (IEEE VR), 2018-2020
Reviewer, ACM User Interface Software and Technology Symposium (UIST), 2018
Reviewer, ACM Tangible, Embedded, and Embodied Interactions (TEI), 2019
Reviewer, ACM Multimedia (MM), 2019-2021

Department and University Services

External Reviewer, Research Grants Council (RGC) of Hong Kong, 2019-2021
Faculty Leader, Peer Seminars in Math/Stat, UCLA-CSST, 2019, 2016
Student Reviewer, UCLA Computer Science Graduate Admission, 2015-2020
Student Reviewer, UCLA-CSST Program Admission, 2016-2020
PhD Student Ambassadors, UCLA Computer Science Department, 2016-2018

Invited Talks

Dark, Beyond Deep: Computer Vision with Humanlike Common Sense
at Institute for AI Industry Research (AIR), Tsinghua University May 2022

Dark, Beyond Deep: Computer Vision with Humanlike Common Sense
at Baidu Research August 2020

Guest Lecture: Object and Scene Understanding
at UCLA Statistics 232C: Cognitive Artificial Intelligence June 2020

Guest Lecture: Visual Reasoning
at UCLA Statistics 232C: Cognitive Artificial Intelligence March 2019

Joint Parsing for Understanding 3D Scenes and Human Activities in Videos
at UCLA CDSC/InTrans Project Annual Review February 2019

Visual Commonsense Reasoning
at PKU-UCLA JRI Annual Symposium October 2018

Object and Scene Understanding: From Passive Observation to Active Interaction
at ONR MURI Annual Review Meeting September 2018

Visual Commonsense Reasoning
at CVPR Workshop on Visual Understanding of Humans in Crowd Scene June 2018

Guest Lecture: Tools and Functionality

at UCLA Statistics 232C: Cognitive Artificial Intelligence — May 2018

Guest Lecture: How to Build a Cognitive Robot
at UCLA Comm. Study 155: Artificial Intelligence and New Media — May 2017

To Feel and Dream: Data for Intelligent Machine Beyond Images and Texts
at Teddy Talk in plenary session at CRESSTCON 2016 — September 2016

Understanding Functionality and Affordance of Objects and Scenes
at Beijing Institute of Technology — May 2016

Functionality and Affordance of Objects and Scenes
at Princeton Vision Group — February 2016

Understanding Objects as Tools, Containers and Chairs
at UCLA Computational Vision and Learning Lab — November 2015

Learning from Human Demonstration: Understanding Objects as Tools
at ONR MURI Annual Review Meeting — September 2015

Understanding Tool Use: a Task-oriented Vision Problem
at ONR MURI Annual Review Meeting — December 2014

What is a Tool? Going beyond what is where
at DARPA MSEE Annual Review Meeting — September 2014

In the Press

Our work on Explainable AI (XAI) was featured in
IEEE Spectrum, UCLA Samueli School of Engineering, Smithsonian, *etc.* — Dec 2019

Our work on Scene Understanding was featured in
UCLA Statistics Moments. — June 2016

UCLA Daily Bruin Prime issued a special interview on our work.
Give a Robot a Fish — May 2016

Our work on "Understanding Tools" was featured in
Statistics Department News. — June 2015

Collaborators

- Prof. Chenfanfu Jiang, Computer Graphics Group, UPenn
- Prof. Hongjing Lu, Department of Mathematics, UCLA
- Prof. Ying Nian Wu, Department of Statistics, UCLA
- Prof. Tao Gao, Department of Statistics and Communication Studies, UCLA
- Prof. Federico Rossano, Comparative Cognition Lab, UCSD
- Prof. Demetri Terzopoulos, Computer Graphics & Vision Laboratory, UCLA

Students Mentored

- Wenhe Zhang, Master in Computer Science, UCLA, 2020 Fall
- Xiaojian Ma, Master in Computer Science, UCLA, 2019 Fall
- Xiaolin Fang, PhD in Computer Science, MIT, 2019 Fall
- Shu Wang, PhD in Statistics, UCLA, 2018 Fall
- Wenwen Si, Master in Computer Vision, CMU, 2018 Fall
- Hangxin Liu, PhD in Computer Science, UCLA, 2018 Spring
- Jenny Lin, PhD in Computer Science, CMU, 2017 Fall
- Mark Edmonds, PhD in Computer Science, UCLA, 2017 Fall

- Tian Ye, Master in Robotics, CMU, 2017 Fall
- Feng Gao, Master in Statistics, UCLA, 2017 Fall
- Xu Xie, Master in Statistics, UCLA, 2017 Fall
- Xingwen Guo, Master in Computer Science, Yale, 2017 Fall
- Chi Zhang, Master in Computer Science, UCLA, 2017 Fall
- Jingyu Shao, Master in Statistics, UCLA, 2016 Winter
- Yutong Zhang, Master in Computer Science, UCLA, 2015 Fall