

CONTACT INFO	Affiliation: UCLA Center for Vision, Cognition, Learning and Autonomy (VCLA) Email: yixin.zhu@ucla.edu Homepage: www.yzhu.io	
RESEARCH INTERESTS	Computer Vision Functional Object and Scene Understanding Computer Graphics Physics-based Simulation Cognitive Science Computational Models of Perception and Action Robotics Functional Equivalent Manipulation Virtual Reality Extraordinary Environments and Abnormal Objects	
EDUCATION	Ph.D. Candidate in Statistics, UCLA Advisor: Prof. Song-Chun Zhu Currently Funded by DARPA: XAI N66001-17-2-4029, SIMPLEX N66001-15-C-4035 ONR MURI: N00014-16-1-2007 Previously Funded by DARPA: MSEE FA 8650-11-1-7149 ONR MURI: N00014-10-1-0933 NSF: IIS-1423305 M.S. in Computer Science, UCLA B.E. in Software Engineering, Xi'an Jiaotong University, China	June 2015 December 2013 July 2012
EXPERIENCES	Graduate Research Assistant Advisor: Prof. Song-Chun Zhu Center for Vision, Cognition, Learning and Autonomy (VCLA), UCLA Visiting Student Host: Prof. Chenfanfu Jiang Computer Graphics Group, Penn Research Intern Mentor: Prof. Gil Alterovitz Biomedical Cybernetics Laboratory, Harvard Medical School UCLA-CSST Program Mentor: Prof. Todd Millstein Computer Science Department, UCLA	March 2013 - present July 2017 Summer 2012 Summer 2011
AWARDS AND SCHOLARSHIPS	Outstanding Reviewer, CVPR Doctoral Student Travel Grants, UCLA Doctoral Student Travel Grants, UCLA Statistics Department Sponsorship for VisionMeetsCognition Workshop at CVPR, Intel Fellowship, University of California, Los Angeles CUDA Hardware Donation Program for Researchers, Nvidia Honor Graduate Certificate, Xi'an Jiaotong University, China Google Scholarship, Google UCLA-CSST Scholarship, University of California, Los Angeles Samsung Scholarship, Samsung Excellent Student Scholarship, Xi'an Jiaotong University, China	2017 2017 2017 2017 2015 - 2017 2014 2012 2011 2011 2010 2008 - 2011
PEER-REVIEWED JOURNAL PAPERS	T. Ye*, S. Qi*, J. Kubricht, Y. Zhu , H. Lu, and S.-C. Zhu. (* Joint first authors) The Martian: Examining Human Physical Judgments Across Virtual Gravity Fields. IEEE Transactions on Visualization and Computer Graphics (TVCG), 2017.	
PEER-REVIEWED CONFERENCE PAPERS	M. Edmonds*, F. Gao*, X. Xie, H. Liu, Y. Zhu , B. Rothrock, and S.-C. Zhu. (* Joint first authors) Learning Complex Functional Manipulations by Human Demonstration and Fluent Discovery.	

Oral Presentation.

Proceedings of International Conference on Intelligent Robots and Systems (IROS), 2017.

H. Liu*, X. Xie*, M. Millar*, M. Edmonds, F. Gao,

Y. Zhu, V. J. Santos, B. Rothrock, and S.-C. Zhu. (★ Joint first authors)

A Glove-based System for Studying Hand-Object Manipulation via Pose and Force Sensing.

Oral Presentation.

Proceedings of International Conference on Intelligent Robots and Systems (IROS), 2017.

J. Kubricht*, **Y. Zhu***, C. Jiang*, D. Terzopoulos, S.-C. Zhu, and H. Lu. (★ Joint first authors)

Consistent Probabilistic Simulation Underlying Human Judgment in Substance Dynamics.

Oral Presentation.

Proceedings of the 39th Annual Conference of the Cognitive Science Society (CogSci), 2017.

J. Lin*, **Y. Zhu***, J. Kubricht*, S.-C. Zhu, and H. Lu. (★ Joint first authors)

Visuomotor Adaptation and Sensory Recalibration in Reversed Hand Movement Task.

Poster Presentation.

Proceedings of the 39th Annual Conference of the Cognitive Science Society (CogSci), 2017.

J. Lin*, X. Guo*, J. Shao*, C. Jiang, **Y. Zhu**, and S.-C. Zhu. (★ Joint first authors)

A Virtual Reality Platform for Dynamic Human-Scene Interaction.

Oral Presentation.

ACM SIGGRAPH Asia 2016, Workshop on Virtual Reality meets Physical Reality

W. Liang, Y. Zhao, **Y. Zhu**, and S.-C. Zhu.

What is Where: Inferring Containment Relations from Videos.

Oral Presentation.

Proceedings of the 25th International Joint Conference on Artificial Intelligence (IJCAI), 2016.

J. Kubricht*, C. Jiang*, **Y. Zhu***, S.-C. Zhu, D. Terzopoulos, and H. Lu. (★ Joint first authors)

Probabilistic Simulation Predicts Human Performance on Viscous Fluid-Pouring Problem.

Oral Presentation.

Proceedings of the 38th Annual Conference of the Cognitive Science Society (CogSci), 2016.

Y. Zhu*, C. Jiang*, Y. Zhao, D. Terzopoulos, and S.-C. Zhu. (★ Joint first authors)

Inferring Forces and Learning Human Utilities From Videos.

Oral Presentation.

Proceedings of the 29th Computer Vision and Pattern Recognition (CVPR), 2016.

W. Liang, Y. Zhao, **Y. Zhu**, and S.-C. Zhu.

Evaluating Human Cognition of Containing Relations with Physical Simulation.

Oral Presentation.

Proceedings of the 37th Annual Conference of the Cognitive Science Society (CogSci), 2015.

Y. Zhu*, Y. Zhao*, and S.-C. Zhu. (★ Joint first authors)

Understanding Tools: Task-Oriented Object Modeling, Learning and Recognition.

Poster Presentation.

Proceedings of the 28th Computer Vision and Pattern Recognition (CVPR), 2015.

PAPERS IN REVIEW H. Liu*, Y. Zhang*, W. Si, X. Xie, **Y. Zhu**, and Song-Chun Zhu. (★ Joint first authors)
Interactive Robot Knowledge Patching using Augmented Reality

X. Xie*, S. Wang*, J. Lin*, H. Liu, S. Qi, **Y. Zhu**, and S.-C. Zhu. (★ Joint first authors)

VRGym: Task-rich Virtual Reality Testbed for Autonomous Agents

D. Wang*, J. Kubricht*, **Y. Zhu***, W. Liang, S.-C. Zhu, C. Jiang, and H. Lu. (★ Joint first

authors)

Spatially Perturbed Collision Sounds Attenuate Perceived Causality in 3D Launching Events

C. Jiang*, S. Qi*, **Y. Zhu***, S. Huang*, Jenny Lin, Lap-Fai Yu, D. Terzopoulos, and S.-C. Zhu.
(* Joint first authors)

Configurable 3D Scene Synthesis and 2D Image Rendering with Per-Pixel Ground Truth using Stochastic Grammars.

Y. Zhu, S.-C. Zhu, and C. Jiang.

Learning Intangible Affordance from Videos by Inferring Temperature and Velocity Field in 3D Indoor Scenes.

X. Xie*, H. Liu*, M. Edmonds, F. Gao, S. Qi,

Y. Zhu, B. Rothrock, and S.-C. Zhu. (* Joint first authors)

Unsupervised Learning of Hierarchical Models for Hand-Object Interactions using Tactile Glove.

S. Qi, **Y. Zhu**, S. Huang, and S.-C. Zhu.

Human-centric Indoor Scene Synthesis using Stochastic Grammar.

W. Liang, **Y. Zhu**, and S.-C. Zhu.

Tracking Occluded Objects and Recovering Incomplete Trajectories by Reasoning about Containment Relations and Human Actions.

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) 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

Student Organizer, MURI Annual Review Meeting, UCLA, 2017.

Student Organizer, MURI Annual Review Meeting, Lake Arrowhead, 2015.

Peer-reviewed Journals and Conferences

Reviewer, International Journal of Computer Vision (IJCV), 2015-2016

Reviewer, Computer Vision and Pattern Recognition (CVPR), 2015-2017

Reviewer, International Conference on Computer Vision (ICCV), 2015,2017

Reviewer, British Machine Vision Conference (BMVC), 2017

Reviewer, Annual Conference of the Cognitive Science Society (CogSci), 2015-2017

Reviewer, IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR), 2017

Department and University Services

Faculty Leader, Peer Seminars in Math/Stat, UCLA-CSST, 2016

- INVITED TALKS
- Guest Lecture: How to Build a Cognitive Robot
at UCLA Communication 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 and UCLA Human Perception 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 Scene Understanding was featured in UCLA Statistics Moments. June 2016
 - UCLA Daily Bruin Prime issued a special interview on our work.
Title: "Give a Robot a Flesh" May 2016
 - Our work on "Understanding Tools" was featured in Statistics Department News. June 2015
- COLLABORATORS
- Prof. Chenfanfu Jiang
at Computer Graphics Group, Penn
 - Prof. Demetri Terzopoulos
at Computer Graphics & Vision Laboratory, UCLA
 - Dr. Brandon Rothrock
at Jet Propulsion Laboratory, Caltech
 - James Kubricht and Prof. Hongjing Lu
at Computational Vision and Learning Lab (CVL), UCLA
 - Prof. Lap-Fai (Craig) Yu
at Graphics and Virtual Environments Lab, UMass Boston
 - Dr. Sara Spotorno, Dr. Tian Xu and Prof. Philippe Schyns
at Centre for Cognitive Neuroimaging, University of Glasgow
 - Dr. Tao Gao
at Computational Cognitive Science Group (cocosci), MIT and GE Research
 - Prof. Wei Liang
at Media Computing and Intelligent Systems Lab, Beijing Institute of Technology
 - Eric Peltola and Prof. Veronica Santos
at Biomechatronics Lab, UCLA

- Dr. Yibiao Zhao
at Computational Cognitive Science Group (cocosci), MIT

STUDENTS
MENTORED

- Jenny Lin, PhD in Computer Science, CMU, 2017 Fall
- Tian Ye, Master in Robotics, CMU, 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