

Tianmin Shu

CONTACT INFORMATION

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EDUCATION

University of California, Los Angeles, Los Angeles, CA, USA Expected: 06/2019

Ph.D. student in Statistics

- Advisor: Song-Chun Zhu
- Areas of focus: human activity recognition in videos, reinforcement and imitation learning for multi-agent systems, computational cognitive science

Fudan University, Shanghai, China 09/2010 - 06/2014

B.S. in Electronic Engineering

RESEARCH EXPERIENCE

Center for Vision, Cognition, Learning and Art, UCLA 09/2014 - present
Graduate Student Researcher *Advisor: Song-Chun Zhu*

- Group activity recognition: structured models of group activities in videos
- Human-robot interaction by reinforcement and imitation learning
- Computational cognitive science: modeling human visual perception of actions and interactions

Salesforce Research, MetaMind Group, Palo Alto, CA, USA 06/2017 - 09/2017
Research Intern *Mentor: Caiming Xiong, Richard Socher*

- Multi-agent reinforcement learning for cooperative communication in Minecraft games
- Hierarchical and Interpretable Reinforcement Learning

Center for Vision, Cognition, Learning and Art, UCLA 07/2013 - 09/2013
Research Intern *Advisor: Song-Chun Zhu*

- Human activity recognition in aerial videos

Digital Signal Processing and Transmission Lab, Fudan University 06/2012 - 06/2014
Research Assistant *Advisor: Bo Hu*

- Real-time surveillance video stitching system; multi-object tracking and event detection

PUBLICATIONS

(* indicates equal contribution)

Peer-reviewed Journal Articles

T. Shu*, Y. Peng*, L. Fan, H. Lu and S.-C. Zhu. Perception of Human Interaction Based on Motion Trajectories: from Aerial Videos to Decontextualized Animations. *Topics in Cognitive Science (TopiCS)*, 10(1): 225 - 241, 2018.

D. Xie, **T. Shu**, S. Todorovic and S.-C. Zhu. Learning and Inferring “Dark Matter” and Predicting Human Intents and Trajectories in Videos. Accepted to IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), 2017.

Peer-reviewed Conference Papers

P. Wei, Y. Liu, **T. Shu**, N. Zheng and S.-C. Zhu. Where and Why Are They Looking? Jointly Inferring Human Attention and Intentions in Complex Tasks. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. (**Acceptance rate: 979/3303 = 30%**)

T. Shu, C. Xiong and R. Socher. Hierarchical and Interpretable Skill Acquisition in Multi-task Reinforcement Learning. *6th International Conference on Learning Representations (ICLR)*, 2018. (**Acceptance rate: 337 / 935 = 36%**)

T. Shu*, Y. Peng*, L. Fan, H. Lu and S.-C. Zhu. Inferring Human Interaction from Motion Trajectories in Aerial Videos. *39th Annual Meeting of the Cognitive Science Society (CogSci)*, 2017. (**Oral presentation, acceptance rate: 255/873 = 29%**) **Computational Modeling Prize**

T. Shu, S. Todorovic and S.-C. Zhu. CERN: Confidence-Energy Recurrent Network for Group Activity Recognition. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017. (**Acceptance rate: 783/2680 = 29%**)

T. Shu, X. Gao, M. S. Ryoo and S.-C. Zhu. Learning Social Affordance Grammar from Videos: Transferring Human Interactions to Human-Robot Interactions. *IEEE International Conference on Robotics and Automation (ICRA)*, 2017. (**Acceptance rate: 939/2289=41%**)

T. Shu*, S. Thurman*, D. Chen, S.-C. Zhu and H. Lu. Critical Features of Joint Actions that Signal Human Interaction. *38th Annual Meeting of the Cognitive Science Society (CogSci)*, 2016.

T. Shu, M. S. Ryoo and S.-C. Zhu. Learning Social Affordance for Human-Robot Interaction. *25th International Joint Conference on Artificial Intelligence (IJCAI)*, 2016. (**Acceptance rate: 558/2294= 24%**)

T. Shu, D. Xie, B. Rothrock, S. Todorovic and S.-C. Zhu. Joint Inference of Groups, Events and Human Roles in Aerial Videos. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2015. (**Oral presentation, acceptance rate: 71/2123 = 3.3%**)

MEDIA COVERAGE “Robots taught to work alongside humans by giving high fives.” *New Scientist*. Apr. 27, 2017

INVITED TALKS “Modeling Human Social Interactions.” *The Annual Meeting of Multidisciplinary University Initiative (MURI)*, UCLA, Aug. 23, 2017

“Inferring Human Interactions.” *3rd Vision Meets Cognition Workshop in Conjunction with CVPR 2017, Honolulu, HI*, Jul. 21, 2017

SELECTED	Computational Modeling Prize (Perception/Action Category), Cognitive Science Society	2017
HONORS AND	UCLA Doctoral Student Travel Grant	2017
AWARDS	Outstanding Bachelor Thesis of Fudan University	2014
	Shanghai Outstanding Graduate Award, Shanghai Municipal Education Commission, China	2014
	National Scholarship of China, Ministry of Education, China	2013
	China Undergraduate Mathematical Contest in Modeling, Second Prize	2011
	The ACM-ICPC Asia Regional Contest Harbin Site, Silver Prize	2010

PROFESSIONAL SERVICE **Conference Reviewer:**
- CVPR (2017, 2018), ICCV (2017), ECCV (2018), IROS (2017)

Journal Reviewer:
- Computers in Industry

Workshop Committee:
- 3rd Vision Meets Cognition Workshop in Conjunction with CVPR 2017

Department and University Services:

- Student Reviewer, UCLA Computer Science Graduate Admission (2017, 2018)
- Grad Student Consultant, the American Statistical Association (ASA) DataFest (2015)

TEACHING
EXPERIENCE

University of California, Los Angeles, Department of Statistics

STATS 102A: Introduction to Computational Statistics with R Fall 2017, Winter 2018

- Teaching Assistant

STATS 232A: Statistical Modeling and Learning in Vision and Cognition Winter 2016

- Special Reader

STATS 130: Getting up to Speed with SPSS, Stata, SAS, and R Spring 2015

- Teaching Assistant

SKILLS

- Programming: Python, MATLAB, R, C/C++, ROS, Perl, Java
- Statistics Softwares: SAS, STATA, SPSS

MENTORING

Undergraduate Research:

- Adam Brownell
- Xiaofeng Gao (currently Ph.D. student in Statistics at UCLA)
- Xiaopei Zhang (Master in Electrical Engineering, UCLA)
- Peimeng Sui (Master in Data Science, NYU)

Master Research:

- Yixin Chen