

Yi Li

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Education

- 2004-2010 **Ph.D** in Electrical and Computer Engineering, 2011
University of Maryland, College Park, MD 20742
Dissertation Title: COGNITIVE ROBOTS FOR SOCIAL INTELLIGENCE
supervised by: Prof. Yiannis Aloimonos and Dr. Cornelia Fermuller
- 2001-2004 **M.Eng** in Computer Science (First Rank), South China Univ. of Tech., China
- 1998-2001 **B.Sc** in Computer Science (First Honor), South China Univ. of Tech., China

Areas of Interest

Computer Vision, Deep Learning, Machine Learning, Human Movement Analysis, Cognitive Robotics, and Visual Tracking.

Research Experience

- 2013-present **Senior Researcher** in Computer Vision Research Group at NICTA
Team members in Detection and Learning, and Perception and Robot Vision;
- 2011-2013 **Researcher** in Bionic Eye at NICTA
Visual Processing Bionic Eye, including cognitive vision, image representation, machine learning, and active sampling;
- 2007-2010 **Research Assistant** in Computer Vision Lab at the University of Maryland
Cognitive robots for social interaction, including movement analysis, computer vision, machine learning, robotics, and active sampling;
Assessing human action for diagnosing neurodegenerative motion disorder.
- 2004-2007 **Research Assistant** in Language and Media Lab at the University of Maryland
Text line segmentation in freestyle documents;
Language identification and document image classification using shape descriptors.
- 2001-2004 **Technical Member** in Huagong Tomorrow Co. Ltd., China
The patented pattern recognition product was awarded 3rd rank from Guangdong China

Professional Activities

Organization Activities

- 2015 *WACV 2014*, Area Chair
- 2014c *DICTA 2014* and *ACCV Workshop on Deep Learning on Visual Data*,
Technical Program Committee
- 2014b *Deep Vision: Deep learning for Computer Vision Workshop*, in conjunction with CVPR 2014,
with Yann Lecun, Jose Alvarez, and Fatih Porikli
- 2014a *CVPR 2014*, Session Chair
- 2013 *NSF Neuromorphic Engineering Workshop*, Colorado
Invited participant
- 2012 *International Conference on Pattern Recognition 2012*, Tsukuba, Japan
Session Chair

Review Activities

JOURNAL *IEEE Trans. Pattern Anal. Machine Intell.*, *Intl. J. of Humanoid*, and *Pattern Recognition*

CONF. *Computer Vision and Pattern Recognition, Intl. Conf. on Computer Vision, Intl. Conf. on Pattern Recognition, Intl. Conf. on Doc. Anal. and Recognition, and IEEE Workshop on Applications of Computer Vision*

Awards and Honors

- 2008-2010 **Future Faculty Fellow**, A. James Clark School of Engineering, University of Maryland.
A fellowship program for preparing gifted graduate students for faculty positions at engineering schools.
- 2007 **Second Place** in First Semantic Robot Vision Challenge, AAAI 2007.
Sponsored by US National Science Foundation.
- 2006 **Best Student Paper** in Intl. Conf. on Frontier in Handwriting Recognition 2006.
Title: “A New Algorithm for Detecting Text Line in Handwritten Documents”

Publications and Talks

JOURNAL ARTICLES

- [28] D’Ausilio A, Badino L, Li Y, Tokay S, Craighero L, et al., “Leadership in Orchestra Emerges from the Causal Relationships of Movement Kinematics”, *PLoS ONE* 7(5): e35757, 2012.
- [27] G. Zhu, X. Yu, Y. Li, and D. Doermann, “Language Identification for Handwritten Document Images Using A Shape Codebook”, *Pattern Recognition*, 2008.
- [26] Y. Li, Y. Zheng, D. Doerman, and S. Jaeger, “Script-Independent Text Line Segmentation in Freestyle Handwritten Documents”, *IEEE Trans. Pattern Anal. Machine Intell.*, vol. 30, no. 8, pp. 1313-1329, August, 2008.
- [25] Y. Li, Z. Wang, and H. Zeng, “Correlation Filter: An Accurate Approach to Detect and Locate Low Contrast Character Strings In Complex Table Environment:”, *IEEE Trans. Pattern Anal. Machine Intell.*, vol. 26, no. 12, pp. 1639-1644, December, 2004.

CONFERENCE PAPERS

- [24] Qihong Ke and Yi Li, “Is Rotation a Nuisance in Shape Recognition?”, *CVPR 2014*.
- [23] Le Kang, Yi Li, and David Doermann, “Orientation Robust Textline Detection in Natural Images”, *CVPR 2014*.
- [22] Le Kang, Ye Peng, Yi Li, and David Doermann, “CNN for No-Reference Image Quality Assessment”, *CVPR 2014, Oral presentation*.
- [21] Hanxi Li, Yi Li, and Fatih Porikli, “DeepTrackSingle: Robust Online Visual Tracking with an Single Convolutional Neural Network”, *ACCV 2014*.
- [20] Hao Zhu and Yi Li, “Fast Inference of Contaminated Data for Real Time Object Tracking ”, *ACCV 2014*.
- [19] Hanxi Li, Yi Li, and Fatih Porikli, “DeepTrack: Learning Discriminative Feature Representations by Convolutional Neural Networks for Visual Tracking”, *BMVC 2014*.
- [18] Le Kang, Peng Ye, Yi Li, and David Doermann, “A Deep Learning Approach to Document Image Quality Assessment”, *ICIP 2014*.
- [17] Le Kang, Jayant Kumar, Peng Ye, Yi Li, and David Doermann, “Convolutional Neural Networks for Document Image Classification”, *ICPR 2014*.
- [16] Fang Wang and Yi Li, “Dual deblurring Leveraged by image matching”, *ICIP 2013, Oral presentation*.
- [15] Fang Wang and Yi Li, “Learning Visual Symbols for Parsing Human Pose in Images”, *IJCAI 2013, Oral presentation*
- [14] Fang Wang and Yi Li, “Beyond Physical Connections: Tree Models in Human Pose Estimation ”, to appear in Proc. of *CVPR 2013, Oral presentation*.
- [13] Fang Wang and Yi Li, “Robust Kernel Estimation for Single Image Blind Deconvolution”, In Proc.

of *ICPR 2012*, Oral presentation.

- [12] Xinke Tang and Yi Li, and N. Barnes, “Lightness illusion: A new look from Compressive Sensing perspective”, In Proc. of *ICIP 2012*.
- [11] Y. Li, Chris McCarthy, and N. Barnes, “On Just Noticeable Difference for Bionic Eye”, In Proc. of *EMBC 2012*.
- [10] Song Wang, Y. Li, and N. Barnes, “Text Image Processing for Visual Prostheses”, In Proc. of *EMBC 2012*.
- [9] N Barnes P Lieby, H Dennet, J G Walker, C McCarthy, N Liu, and Y. Li “Investigating the role of single-viewpoint depth data in visually-guided mobility”, In Proc. of *VSS 2011*.
- [8] A. Stacey, Y. Li, and N. Barnes, “A Saliency processing system for obstacle avoidance”, In Proc. of *EMBC 2011*.
- [7] Y. Li, K. Bitsakos, C. Fermuller, and Y. Aloimonos, “Real-Time Shape Retrieval for Robotics Using Skip Tri-Grams”, In Proc. of *Intl. Conf. on Intell. Robots and Sys. 2009*.
- [6] G. Zhu, X. Yu, Y. Li and D. Doermann, “Learning Visual Shape Lexicon for Document Image Content Recognition”, In Proc. of *European Conf. on Computer Vision 2008*, pp. 745-758.
- [5] Y. Li and D. Jacobs, “Efficiently Determining Silhouette Consistency”, In Proc. of *Intl. Conf. on Computer Vision and Pattern Recognition 2007*.
- [4] X. Yu, Y. Li, C. Fermuller, and D. Doermann, “Object Detection Using A Shape Codebook”, In Proc. of *British Machine Vision Conference 2007*.
- [3] K. Bitsakos, Y. Li, and C. Fermuller, “Combining Motion from Texture and Lines for Visual Navigation”, In Proc. of Intl. Conf. on Intell. Robots and Sys. 2007, pp. 232-239.
- [2] Y. Li, Y. Zheng and D. Doermann, “Detecting Text Line in Handwritten Documents”. In Proc. of *Intl. Conf. on Pattern Recognition 2006*, pp 1030-1033.
- [1] Y. Li, Z. Wang, and H. Zeng, “String Extraction From Color Airline Coupon Image Using Statistical Approach”, In Proc. of *Intl. Conf. on Document Analysis and Recognition 2003*, pp. 289-294.

ABSTRACTS

- A.3 A. Stacey and Y. Li, “Optimal Zooming Scale in Place Recognition for Bionic Eye”, *Medical Bionics 2011*.
- A.2 N. Barnes, P. Lieby, H. Dennet, J. Walker, C. McCarthy, N. Liu, and Y. Li, “Investigating the role of singleview point depth data in visually-guided mobility. In Vision Science Society Annual Meeting 2011.”, *Vision Science Society 2011*.
- A.1 Y. Li, C. Fermuller and Y. Aloimonos, “Illusory lightness perception due to signal compression and reconstruction”, *Vision Science Society 2010*.

Selected Talks

- 2014b “Image Quality Assessment using Deep Learning”, *AT&T Lab, NY*,
- 2014a “Deep Learning for Computer Vision”, *ICT, Chinese Academy of Science*,
- 2013 “Human pose estimation for 3D object manipulation”, *NIST, Gaithersburg, MD*,
- 2013 “Human pose estimation for object manipulation”, *Telluride Neuromorphic Engineering Workshop*,
- 2012 “Low rank Submatrix for point matching”, *University of Tokyo*,
- 2009b “Google Vision vs. Robot Vision”, *Intl. Conf. on Intell. Robots and Systems 2009*, St. Louis.
- 2009a Dialogue between Y. Li and Y. Aloimonos, “Social Signal Processing: A Visual Dialogue” at *Social Signal Processing Workshop, Intl. Conf. on Affective Computing 2009*, Amsterdam.

Teaching Experience

- 2012 **Instructor**, NICTA Computer Vision Short Course, 25% workload,
2012 **Co-Lecturer**, ENGN 4528/6528, *Computer Vision*, 25% workload,
Introduction to basic concepts in computer vision and image processing.
- 2011 **Instructor**, NICTA Computer Vision Short Course, 25% workload,
2009 **Co-Instructor**, CMSC 250, *Introduction to Discrete Structures*, 25% workload,
Introduction to basic concepts in Computer Science: logic, circuits, elementary number theory, sets,
combinations, relation, trees and graphs.
- 2008 **Professional Training for Effective Teaching**, ENES 602, *Future Faculty Program II*,
Basic principles of education and learning; Developing a course; Promoting active learning, problem
solving and critical thinking; Designing syllabus, exam and assignments; Communicating effectively
with students.

References

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| PROF. YIANNIS ALOIMONOS
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University of Maryland, United States |
| PROF. LUCIANO FADIGA
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Italian Institute of Technology and University of Ferrara, Italy |
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