

# Junhua Mao

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## Education

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**University of California, Los Angeles (UCLA)** 9/2013 - present

Ph.D. in Computer Vision and Machine Learning (Expected 6/2017)

- Mentor: Professor Alan L. Yuille, Current GPA: 4.00/4.00

**University of Science and Technology of China (USTC)** 9/2009 - 7/2013

B.E. in Electronic Information Engineering

- GPA: 3.97/ 4.3 (Overall), 4.10/ 4.3 (Math), Rank: 1 / 287
- *Best Bachelor's Thesis Award*, Mentor: Prof. Houqiang Li (USTC) and Prof. Qi Tian (UTSA)
- *Guo Moruo Scholarship*, The supreme honor for the USTC undergraduates
- National Scholarship, China (9/2010 & 9/2011)

## Experience

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**Software Engineering Intern, Google[x], Mountain View** 6/2016 - Now

- Host: Congcong Li and Ury Zhilinsky;
- Topic: *Self-driving Car*

**Research Intern, Visual Discovery, Pinterest, San Francisco** 1/2016 - 4/2016

- Host: Kevin Jing and Jiajing Xu;
- Topic: *Large Scale Learning of Multimodal Word Embedding*

**Research Intern, Google Research, Mountain View** 6/2015 - 9/2015

- Host: Kevin Murphy;
- Topic: *Joint Generation and Comprehension of Unambiguous Object Descriptions* [8]
  - Collected a large scale dataset for this new task.
  - Proposed a state-of-the-art algorithm to generate and comprehend object descriptions;

**Research Intern, Institute of Deep Learning, Baidu Research USA, Sunnyvale** 6/2014 - 9/2014

- Host: Wei Xu;
- Topic: *Multimodal Modeling with Deep Networks* [5,6,7,9]
  - Proposed a novel multimodal Recurrent Neural Network model (m-RNN) for three tasks: sentence generation and retrieval given query image, and image retrieval given query sentence. It significantly outperforms the state-of-the-art.

**Research Assistant, UCLA Center for Cognition, Vision, and Learning** 9/2013 -present

- Advisor: Alan L. Yuille;
- Topic: *Multimodal Learning for Vision and Language* [5,6,7,8,9]
  - Addressed tasks of image captioning [5, 6], visual question answering [7], referring expression [8], and multi-label classification [9].
  - Proposed and adopted the RNN-CNN framework in these tasks (Recurrent Neural Network and Convolutional Neural Network).
  - Collaborated with Baidu Research, Google Research and Pinterest
- Topic: *Learning from Weakly Supervised Data* [4]
  - Proposed an expectation loss SVM (e-SVM) that learns classifiers effectively from weakly labeled data.
- Topic: *Learning a Generative Model with Dictionary of Active Patches* [3]
  - Presented a probabilistic active patch model on appearance classification;
  - Built two new datasets for real-world appearance recognition;
  - Achieved the state-of-the-art performance on three datasets.

## Undergraduate Research Assistant, Information Processing Center, USTC

9/2011-7/2013

- Advisors: Prof. Qi Tian (UTSA) and Prof. Houqiang Li (USTC);
- Topic: Scene *Text Detection and Image Retrieval*. [1, 2]

## Publication

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[1] Junhua Mao, Houqiang Li, Wengang Zhou, and Qi Tian, “A multilingual scene text detection method”, *Patent CNI02799879A*.

[2] Junhua Mao, Houqiang Li, Wengang Zhou, Shuicheng Yan and Qi Tian, “Scale-based Region Growing For Scene Text Detection”, *Oral, ACM Multimedia 2013*.

[3] Junhua Mao, Jun Zhu, and Alan L. Yuille, “An Active Patch Model for Real World Texture and Appearance Classification”, *ECCV 2014*.

[4] Jun Zhu, Junhua Mao, and Alan L. Yuille, “Learning from Weakly Supervised Data by the Expectation Loss SVM (e-SVM)”, *NIPS 2014*.

[5] Junhua Mao, Wei Xu, Yi Yang, Jiang Wang, Zhiheng Huang and Alan L. Yuille, “Deep Captioning with Multimodal Recurrent Neural Networks (m-RNN)”, *Oral, ICLR 2015*.

[6] Junhua Mao, Wei Xu, Yi Yang, Jiang Wang, Zhiheng Huang and Alan L. Yuille, “Learning like a Child: Fast Novel Visual Concept Learning from Sentence Descriptions of Images”, *ICCV 2015*.

[7] Haoyuan Gao, Junhua Mao, Jie Zhou, Zhiheng Huang, Lei Wang, and Wei Xu, “Are You Talking to a Machine? Dataset and Methods for Multilingual Image Question Answering”, *NIPS 2015*.

[8] Junhua Mao, Jonathan Huang, Alexander Toshev, Oana Camburu, Alan Yuille, Kevin Murphy, “Generation and Comprehension of Unambiguous Object Descriptions”, *Oral, CVPR 2016*.

[9] Jiang Wang, Yi Yang, Junhua Mao, Zhiheng Huang, Chang Huang, Wei Xu, “CNN-RNN: A Unified Framework for Multi-label Image Classification”, *Oral, CVPR 2016*.

## Skills

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Python (proficient), C/C++ (proficient), Matlab, Cuda C for GPU parallelizing

## Awards

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Meritorious Winner, Mathematical Contest in Modeling, Top 9%

2/2011, 2/2012

Robot Game Contest, Enter the Final, *Team Leader*

9/2011