

Lu Jiang (Ph.D)

Last updated February 2019

CONTACT INFORMATION

Google AI
1600 Amphitheatre Pkwy
Mountain View, CA, 94043

+1 (412) 897-5924
roadjiang@yahoo.com
<http://www.lujiang.info>

RESEARCH INTERESTS

My research goal is to solve real problems on big data. My research area is in the interdisciplinary field of Multimedia, Machine Learning, Computer Vision, Information Retrieval and Big Data, which specifically, includes video understanding, deep learning on noisy data, vision+language, etc.

EDUCATION

Carnegie Mellon University 2011 - 2017
Ph.D. in Artificial Intelligence. (GPA: 4.12/4.33)
Advisors: Prof. Alexander Hauptmann and Prof. Teruko Mitamura
Thesis: Web-scale Multimedia Search for Internet Video Content

Free University of Brussels 2010 - 2011
M.Sc. in Computer Science. (Erasmus Mundus Exchange Program)

Xi'an Jiaotong University 2008 - 2011
M.Sc. in Computer Science. (GPA: 3.62/4.00, Rank: 1/142), Advisor: Prof. Jun Liu
B.Eng. in Software Engineering, 2008. (Major GPA: 3.88/4.00)

HONORS & AWARDS

Yahoo! Fellowship. 2016
Best Poster at IEEE Spoken Language Technology 2014
Best Paper candidate at International Conference on Multimedia Retrieval 2014, 2015
-Only 2% of all submitted papers were nominated for best paper candidates. Received it twice.
Best performer on multimedia event detection at NIST TRECVID 2013, 2014
-Key contributor to our winning system. Participants included 30 companies and research institutes.
Best performer on surveillance event detection at NIST TRECVID 2011
Erasmus Mundus Tandem scholarship 2010
-Fellowship from the Europe Union for studying in Europe. Only 41 master students in China were awarded.
Fuji Xerox Fellowship 2010
Samsung Fellowship 2009
IBM excellent student in China 2007

RESEARCH EXPERIENCE

Research Scientist at *Google AI* May 2017 - Now
• AutoML and computer vision for Enterprise AI.

Research Assistant at *Carnegie Mellon University* Sep. 2011 - April 2017
• The key contributor to a five-year [IARPA project](#). The project is to approach an automatic method to detect the event in Internet videos without any user-generated metadata. Proposed the first of its kind zero-shot system, which not only achieves the top performance in [NIST TRECVID evaluation 2013-2015](#), 3 years in a row, but also scales the search up to 100 million videos. The developed techniques lead to patterns and inventions.

Intern Scientist at *Yahoo Research* May 2016 - August 2016
• The project is on the large-scale personal photo and video search on Flickr. Proposed deep query understanding models that boost the state-of-the-art (word2vec) search accuracy by a relative 45%. In addition, analyzed big personal media search logs on Flickr, and discovered distinguishing characteristics of this novel problem.

Intern at *Google Research* Feb. 2016 - May 2016
• The project is on training concept detectors on big weakly-labeled data of YouTube using Tensorflow. Proposed novel webly-labeled learning method which improves the state-of-the-art accuracy by Y%. In addition, slashed training time from a few days to a few hours.

Research Intern at *Microsoft Research Asia* May 2010 - August 2010

- Designed and implemented a novel pattern/logic engine for retrieval and data mining system. The code was used in the launched product.

Research Assistant at *Xi'an Jiaotong University*

Sep. 2008 - July 2010

- The project is a National High-Tech R&D Program, which aims at discovering and managing the educational resources on the Internet. Designed and implemented domain term recognition and title extraction for World, PPT, PDF, and HTML. Proposed algorithms to recognize the associations in knowledge networks; designed and implemented the knowledge element association detector.

SELECTED
PUBLICATIONS
(H-INDEX=23)
GOOGLE SCHOLAR

- [1] Junwei Liang, Lu Jiang, Juan Carlos Nieves, Alexander Hauptmann, Li Fei-Fei. Peeking into the future: Predicting Future Person Activities and Locations in Videos. *CVPR 19* *In Computer Vision and Pattern Recognition (CVPR)*, 2019
- [2] Nam Vo, Lu Jiang, Chen Sun, Kevin Murphy, Li-Jia Li, Li Fei-Fei, James Hays. Composing Text and Image for Image Retrieval - An Empirical Odyssey. *CVPR 19* *In Computer Vision and Pattern Recognition (CVPR)*, 2019
- [3] Guoliang Kang, Lu Jiang, Yi Yang, Alexander Hauptmann. Contrastive Adaptation Network for Unsupervised Domain Adaptation. *CVPR 19* *In Computer Vision and Pattern Recognition (CVPR)*, 2019
- [4] Yunbo Wang, Lu Jiang, Ming-Hsuan Yang, Li-Jia Li, Mingsheng Long, Li Fei-Fei. Eidetic 3D LSTM: A Model for Video Prediction and Beyond. *ICLR 19* *In International Conference on Learning Representations (ICLR)*, 2019
- [5] Junwei Liang, Lu Jiang, Liangliang Cao, Yannis Kalantidis, Li-Jia Li, Alexander Hauptmann. Focal Visual-Text Attention for Memex Question Answering. *TPAMI 19* *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2019
- [6] Lu Jiang, Zhengyuan Zhou, Thomas Leung, Li-Jia Li, Li Fei-Fei. MentorNet: Learning Data-Driven Curriculum for Very Deep Neural Networks on Corrupted Labels. *ICML 18* *In International Conference on Machine Learning (ICML)*, 2018
- [7] Junwei Liang, Lu Jiang, Liangliang Cao, Li-Jia Li, Alexander Hauptmann. Focal Visual-Text Attention for Visual Question Answering. *CVPR 18* *In Computer Vision and Pattern Recognition (CVPR)*, 2018 (spotlight)
- [8] Zelun Luo, Jun-Ting Hsieh, Lu Jiang, Juan Carlos Nieves, Li Fei-Fei. Graph Distillation for Action Detection with Privileged Information in RGB-D Videos. *ECCV 18* *In European Conference on Computer Vision (ECCV)*, 2018
- [9] Yu Wu, Linchao Zhu, Lu Jiang, Yi Yang. Decoupled Novel Object Captioner. *MM 18* *ACM Multimedia (MM)*, 2018
- [10] Lu Jiang, Yannis Kalantidis, Liangliang Cao, Sachin, Farfadi, Jiliang Tang, Alex Hauptmann. Delving Deep into Personal Photo and Video Search. *WSDM 17* *In Web Search and Data Mining (WSDM)*, 2017.
- [11] Junwei Liang, Lu Jiang, Deyu Meng, Alexander Hauptmann. Leveraging Multi-modal Prior Knowledge for Large-scale Concept Learning in Noisy Web Data. *ICMR 17* *In ACM International Conference on Multimedia Retrieval (ICMR)*, 2017. (oral)
- [12] Junwei Liang, Lu Jiang, Alexander Hauptmann. Temporal Localization of Audio Events for Conflict Monitoring in Social Media. *ICASSP 17* *In IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2017.
- [13] Zhang, Dingwen, Junwei Han, Lu Jiang, Senmao Ye, and Xiaojun Chang. Revealing event saliency in unconstrained video collection. *TIP 17* *IEEE Transactions on Image Processing* 26, no. 4 (2017): 1746-1758.
- [14] Lu Jiang. Web-scale Multimedia Search for Internet Video Content. *WWW 16* *In International Conference on World Wide Web (WWW)*, 2016.
- [15] Junwei Liang, Lu Jiang, Deyu Meng, Alexander Hauptmann. Learning to Detect Concepts from Webly-Labeled Video Data. *IJCAI 16* *In Joint Conference on Artificial Intelligence (IJCAI)*, 2016.
- [16] Lu Jiang, Shoou-I Yu, Deyu Meng, Yi Yang, Teruko Mitamura, Alexander Hauptmann. Fast and Accurate Content-based Semantic Search in 100M Internet Videos. *MM 15* *In ACM Multimedia (MM)*, 2015.

- [17] Lu Jiang, Shou-I Yu, Deyu Meng, Teruko Mitamura, Alexander Hauptmann. Bridging the Ultimate Semantic Gap: A Semantic Search Engine for Internet Videos. *In ACM International Conference on Multimedia Retrieval (ICMR)*, 2015. ICMR 15 (best paper candidate)
- [18] Qian Zhao, Deyu Meng, Lu Jiang, Qi Xie, Zongben Xu, Alexander Hauptmann. Self-paced Learning for Matrix Factorization. *In Conference on Artificial Intelligence (AAAI)*, 2015. AAAI 15 (oral)
- [19] Lu Jiang, Deyu Meng, Shou-I Yu, Zhen-Zhong Lan, Shiguang Shan, Alexander Hauptmann. Self-paced Learning with Diversity. *In Neural Information Processing Systems (NIPS)*, 2014. NIPS 14
- [20] Lu Jiang, Deyu Meng, Teruko Mitamura, Alexander Hauptmann. Easy Samples First: Self-paced Reranking for Zero-Example Multimedia Search. *In ACM Multimedia (MM)*, 2014. MM 14
- [21] Yajie Miao, Lu Jiang, Hao Zhang, Florian Metze. Improvements to Speaker Adaptive Training of Deep Neural Networks. *In IEEE Spoken Language Technology (SLT)*, 2014. SLT 14 (best poster)
- [21] Lu Jiang, Wei Tong, Deyu Meng, Alexander Hauptmann. Towards Efficient Learning of Optimal Spatial Bag-of-Words Representations. *In ACM International Conference on Multimedia Retrieval (ICMR)*. 2014. ICMR 14 (best paper candidate)
- [22] Lu Jiang, Yajie Miao, Yi Yang, Zhen-Zhong Lan, Alexander Hauptmann. Viral Video Style: A Closer Look at Viral Videos on YouTube. *In ACM International Conference on Multimedia Retrieval (ICMR)*, 2014. ICMR 14
- [23] Shou-I Yu, Lu Jiang, et al. CMU-Informedia@TRECVID 2014. *In NIST TRECVID Video Retrieval Evaluation Workshop (TRECVID)*, 2014. TRECVID 14 (best system)
- [24] Lu Jiang, Alexander Hauptmann, Guang Xiang. Leveraging High-level and Low-level Features for Multimedia Event Detection. *In ACM Multimedia (MM)*, 2012. MM 12
- [25] Jun Liu, Lu Jiang, Zhaohui Wu, Qinghua Zheng, Yanan Qian. Mining Learning-Dependency between Knowledge Units from Text. *The International Journal on Very Large Data Bases (VLDBJ)*, 20(3): 335-345, 2011. VLDBJ 11

PATTERN AND INVENTIONS

- [1] *Event Labeling through Analytic Media Processing*, Disclosure of Invention, Key Inventor. No. 0247601-15-0048, 2016.
- [2] *Large-scale video content retrieval through text query*, Invention, Second Inventor, U.S. Serial No. 62/285,256 2015.
- [3] *A Features Dictionary Generating Method for Text Classification based on LZW Compression Algorithm*. Authorization No. ZL 2008 1 0232557.2 2008 (in Chinese).
- [4] *A Deep Web Adaptive Crawling Method based on Minimum Executable Pattern*. Application No. 200810232555.3, 2008. (in Chinese).

PROFESSIONAL SERVICE

Conferences:

- ACM Multimedia 2019 area chair (Vision + Language).
- PC for ACM Multimedia (2013 - 2019)
- Reviewer for CVPR (2018, 2019) and ICCV (2019)
- PC for for AAAI (2017, 2018) and IJCAI (2017)
- Co-chair of CMU LTI-SRS (2015)

Google AI:

- Google Faculty Award Committee
- Google Research Intern Hiring Committee

Journal and Book Review:

- Journal of Supercomputing
- Journal on Signal Processing
- Journal on Information Fusion
- IEEE Transactions on Multimedia (TMM)
- Journal of Machine Learning Research (JMLR)
- Computer Vision and Image Understanding (CVIU)
- Springer Computing (Book Chapter review)
- Journal of Intelligent Information Systems

Electronic Commerce Research and Applications
International Journal of Automation and Computing
IEEE Transactions on Neural Networks and Learning Systems
IEEE Transactions on Circuits and System for Video Technology
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
ACM Transactions on Multimedia Computing, Communications and Applications

FORMER

Junwei Liang (CMU Master $\xrightarrow{\text{next}}$ CMU Ph.D.)

INTERNS/STUDENTS

Zelun Luo (Stanford Master $\xrightarrow{\text{next}}$ Stanford Ph.D.)

Yunbo Wang (Tsinghua University Ph.D. $\xrightarrow{\text{next}}$ MIT Visiting Student)

Serena Yeung (Stanford Ph.D. $\xrightarrow{\text{next}}$ Stanford Assistant Professor)

Nam Vo (Georgia Tech Ph.D.)

Jim Fan (Stanford Ph.D.)

Yizhuang Zhou (Tsinghua University)

Alejandro Newell (University of Michigan Ph.D.)