Yixuan (Sharon) Li

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Research Interests

Machine learning and representation learning, with applications to computer vision and network science

Education

Sep 2013 -	**Cornell University, Ithaca, NY**
Dec 2017	**Ph.D.** in Electrical and Computer Engineering Advisor: *John E. Hopcroft* Thesis committee members: *Kilian Q. Weinberger, Thorsten Joachims*
Sep 2009 -	**Shanghai Jiaotong University**
Jun 2013	**B.Eng** in Electrical Engineering, Honored Class Major GPA: 92.1/100, Rank: 1/98 *Honors: National Scholarship of China (2 years); Academic Excellence Scholarship (3 years)*
Summer	**Georgia Institute of Technology, Atlanta, GA**
2011	Non-degree Exchange Student

Work Experience

Oct 2017 - Present	**Facebook AI**, Menlo Park, CA *Research Scientist*
May 2017- Aug 2017	**GrokStyle (acquired by Facebook)**, Cambridge, MA *Research Intern, Mentor: Prof. Kavita Bala*
May 2016- Aug 2016	**Google Research**, Mountain View, CA *Research Intern, Mentor: Vidhya Navalpakkam*
May 2015- Aug 2015	**Google**, Mountain View, CA *Research Intern, Mentor: Oscar Martinez*

Publications

Conference Publications/Preprints

20. Abhinmanyu Dubey, Laurens van der Maaten, Zeki Yalniz, **Yixuan Li** and Dhruv Mahajan
Defense Against Adversarial Images using Web-Scale Nearest-Neighbor Search
CVPR 2019, to appear

19. D. Mahajan, R. Girshick, V. Ramanathan, K. He, M. Paluri, **Y. Li**, A. Bharambe, and L. van der Maaten
Exploring the Limits of Weakly Supervised Pretraining
In proceedings of European Conference on Computer Vision (**ECCV**), 2018

18. Shiyu Liang, Ruoyu Sun, **Yixuan Li**, R. Srikant,
Understanding the Loss Surface of Neural Networks for Binary Classification
In Proceedings of International Conference on Machine Learning (**ICML**), 2018

17. Shiyu Liang, **Yixuan Li**, R. Srikant
Enhancing The Reliability of Out-of-distribution Image Detection in Neural Networks
In proceedings of the 6th International Conference on Learning Representations (**ICLR**), 2018

16. Gao Huang*, **Yixuan Li***, Geoff Pleiss, Zhuang Liu, John Hopcroft and Kilian Weinberger
Snapshot Ensembles: Train 1, Get M for Free
In proceedings of the 5th International Conference on Learning Representations (**ICLR**), 2017
(* indicates equal contribution)

15. Xun Huang, **Yixuan Li**, Omid Poursaeed, John Hopcroft and Serge Belongie
Stacked Adversarial Generative Networks
In proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017

14. **Yixuan Li**, Pingmei Xu, Dmitry Lagun and Vidhya Navalpakkam
Towards Measuring and Inferring User Interest From Gaze
In Proceedings of the 26th international conference on World Wide Web (**WWW**), 2017

13. Jacob Gardner, Paul Upchurch, Matt Kusner, **Yixuan Li**, Kilian Weinberger, Kavita Bala and John Hopcroft
Deep Manifold Traversal: Changing Labels with Convolutional Features
arXiv cs.LG/1511.06421

12. **Yixuan Li**, Jason Yosinski, Jeff Clune, John Hopcroft and Hod Lipson
Convergent Learning: Do different neural networks learn the same representations?
In proceedings of the 4th International Conference on Learning Representation, (**ICLR**), 2016
Oral Presentation, Acceptance Ratio: 5.7%

11. **Yixuan Li**, Oscar Martinez, Xing Chen, Yi Li and John Hopcroft
In a World that Counts: Clustering and Detecting Fake Social Engagement at Scale
In proceedings of the 25th international conference on World Wide Web (**WWW**), 2016

10. Jiezhong Qiu, **Yixuan Li**, Jie Tang, Zheng Lu, Hao Ye, Bo Chen, Qiang Yang and John Hopcroft
The Lifecycle and Cascade of Social Messaging Groups
In proceedings of the 25th international conference on World Wide Web (**WWW**), 2016

9. Kyle Kloster, **Yixuan Li**
Scalable and Robust Local Community Detection via Adaptive Subgraph Extraction and Diffusions
Preprint on arXiv.

8. **Yixuan Li**, Kun He, David Bindel and John Hopcroft
Uncovering the Small Community Structure in Large Networks: A Local Spectral Approach
In proceedings of the 24th International Conference on World Wide Web (**WWW**), 2015
(Acceptance ratio: 14.1%)

7. Kun He, Yiwei Sun, David Bindel and John Hopcroft, **Yixuan Li**
Detecting Overlapping Communities from Local Spectral Subspaces
In proceedings of the International Conference on Data Mining (**ICDM**), 2015
(Acceptance ratio: 18.2%)

Journal Publications

6. **Yixuan Li**, Kun He, Kyle Kloster, David Bindel and John Hopcroft
Local spectral clustering for overlapping community detection
In ACM Transactions on Knowledge Discovery from Data (**TKDD**), 2017

5. J. Zhang, **Yixuan Li**, Z. Liu, F. Wu, F. Yang, X. Wang
On Multicast Capacity and Delay in Cognitive Radio Mobile Ad-hoc Networks
In IEEE Transactions on Wireless Communications (**TWC**), 2015

4. **Yixuan Li**, Qiuyu Peng and Xinbing Wang
Multicast Capacity With Max-Min Fairness for Heterogeneous Networks
In IEEE/ACM Transactions on Networking (**TON**), 2014

Workshop papers and Manuscripts

3. Shiyu Liang, Ruoyu Sun, **Yixuan Li**, R. Srikant
Understanding the Loss Surface of Single-Layered Neural Networks for Binary Classification
Workshop in International Conference on Learning Representation (**ICLR Workshop**), 2018

2. **Yixuan Li**, Shuang Li, Matt Kusner, Karthik Sridharan, Kilian Weinberger and John Hopcroft
Subspace Ensemble Networks
Manuscript, 2016

1. **Yixuan Li**, Jason Yosinski, Jeff Clune, John Hopcroft and Hod Lipson
Convergent Learning: Do different neural networks learn the same representations?
NIPS Workshop on Feature Extraction: Modern Questions and Challenges, 2015
(Selected oral presentation: 6.7%)

Awards and Honors

2018	CVPR Doctoral Consortirum Travel Award
2017	Selected Rising Stars in EECS by Stanford University
2017	ACM-W Scholarship
2017	D.E. Shaw Women's Exploration Fellowship
2013	Graduate School Fellowship, Cornell University
2011-2012	National Scholarship of China
	(Awarded to the top 3% undergrad students in China)
2010-2012	Academic Excellence Scholarship, SJTU
2011	First Prize in Undergraduate Mathematical Contest in Modeling
2010	Wen-Yuan Pan Scholarship

Research Mentoring

2018	*Rui Wang, Software Engineer, Facebook AI (CMU'17)* Mentoring research project on large-scale weakly supervised learning.
2016-17	*Shiyu Liang, Ph.D. student, UIUC* Mentored research on improving robustness of neural network
2016	*Xun Huang, Ph.D. student, Cornell University* Mentored research project on generative image modeling
2015	*Jiezhong Qiu, Ph.D. student, Tsinghua University* Supervised summer research project during his visit at Cornell University
2015	*Eric Zhan, CS Undergraduate, Cornell University (now a PhD student in CS at Caltech)* Supervised senior undergrad research project.
2015	*Ziyang Tang, MS student in CS, Cornell University (now a PhD student in CS at UT Austin)* Supervised senior undergrad research project.
2015	*Heath Guo, CS Undergraduate, Cornell University (now at Google)* Supervised senior undergrad research project.
2015	*Peter Wu, CS Undergraduate, Cornell University (now a PhD student in Stats at Cornell)* Supervised senior undergrad research project.
2015	*Leo Mehr, CS Undergraduate, Cornell University (now a MS student in CS at Stanford)* Supervised senior undergrad research project.

Talks & Panels

2019 *Advancing State-of-the-art Image Recognition with Deep Learning on Hashtags*
Deep Learning Summit, San Francisco, CA

2018 *Deep Neural Networks for Visual Recognition: Efficiency, Scalability and Reliability*
Microsoft Research AI, Redmond, WA

2018 *Panelist, Women in Research at Facebook*
Grace Hopper Celebration , Houston, TX

2018 *Deep Neural Networks for Visual Recognition: Efficiency, Scalability and Reliability*
Pony.ai, Fremont, CA

2018 *Image Understanding at Facebook: Scalability and Reliability*
Grace Hopper Celebration, Artificial Intelligence Track, Houston, TX

2018 *Panelist, Women in Research Lean In (WiRL) Circle*
Facebook , Menlo Park, CA

2017 *Towards Understanding the Inner Workings of Deep Neural Networks*
Grace Hopper Celebration, Artificial Intelligence Track, Orlando, FL

2017 *Deep Neural Networks for Visual Recognition: Efficiency, Transparency and Reliability*
PhD Thesis Defense Talk, Cornell University

2017 *Towards Understanding, Improving and Scaling Learning in Deep Neural Networks*
Computer Vision Group at Cornell Tech

2016 *In a World That Counts: Clustering and Detecting Fake Social Engagement at Scale*
Oral Presentation, WWW'16

2016 *Convergent Learning: Do different neural networks learn the same representations?*
Cornell Statistics Student Seminar

2016 *Local Spectral Graph Clustering at Scale: Principle and Its Application*
Google Research, NY

2015 *Convergent Learning: Do different neural networks learn the same representations?*
Machine Learning Discussion Group at Cornell

2015 *Uncovering the Small Community Structure in Large Networks: A Local Spectral Approach*
Oral Presentation, WWW'15

Professional Service

- **Journals reviewed:**

  IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
  IEEE Transactions on Knowledge and Data Engineering (TKDE)
  ACM Transactions on the Web (TWEB)
  IEEE Transactions on Intelligent Systems and Technology (TIST)
  IEEE Transactions on Big Data (TBD)
  Pattern Recognition (PR)

- **Conferences:**

  Reviewer for NIPS, 2016
  Reviewer for AAAI, WiML (Women in Machine Learning Workshop), 2017
  Reviewer for NIPS, 2018
  Reviewer for CVPR, 2019
  Reviewer for ICCV, 2019

Teaching Experience

Feb 2015 - Jul 2015 — Head of Teaching Assistent, Cornell University
Mathematical Foundations for the Information Age

· Organized weekly grading sessions, coordinated among 8 other course TAs, held tutoring sessions.
· Managed and maintained the course website. Guest lecturer.

Press

2018 — *Your Instagram #Dogs and #Cats are Training Facebook's AI*
Wired

2018 — *Using Instagram Photos to Train Image Recognition AI*
TechCrunch

2017 — *Awarded ACM-M Scholarship*
Cornell CS Department News.

2016 — *Blocking 'fake engagement' to keep the count honest*
Cornell Chronicle, covering joint research publication with Google.

Leadership Experience

Feb 2015 - Jun 2015 — Deep Learning Reading Group, Cornell
Organizer

Apr 2015 - Apr 2016 — Cornell Chinese Student and Scholar Association (CSSA)
Vice President

Sep 2014 - Nov 2016 — Technology Entrepreneurship at Cornell University (TEC Club)
Vice President

Sep 2011 - Nov 2012 — Shanghai Jiaotong University International Communication Association (SICA)
Vice President, Founding Member