

Yuxin Chen

CONTACT INFORMATION	5730 S Ellis Avenue, JCL 317 Chicago, IL 60637	Phone (O): +1 (773) 702-2166 Email: cheniyuxin@uchicago.edu Web: http://iyuxinchen.org/
RESEARCH APPOINTMENTS	Assistant Professor , Computer Science, University of Chicago Postdoctoral Scholar , CMS, California Institute of Technology Visiting Scholar , Xerox Research Center Europe, France Research Intern , Microsoft Research Cambridge, UK Doctoral Research Assistant , ETH Zurich, Switzerland Graduate Research Assistant , The University of Kansas	2019 – present 2017 – 2019 2015 2014 2011-2017 2009-2011
EDUCATION	ETH Zurich , Switzerland Ph.D. , Computer Science - Ph.D. Thesis: <i>Near-optimal Adaptive Information Acquisition – Theory and Applications</i> - Thesis Committee: Andreas Krause (advisor), Joachim Buhmann , Kilian Weinberger - Supported in part by the <i>Google Ph.D. Fellowship</i> (2014 – 2017) The University of Kansas , Lawrence, KS USA M.Sc. (with honors), Computer Science - Master’s Thesis: <i>Understanding User Intentions in Vertical Image Search</i> - Thesis Committee: Bo Luo (advisor), Xue-wen Chen, Brian Potetz - Area of Study: Information Retrieval, Information Security and Privacy University of Science and Technology of China , Hefei, Anhui China B.E. , Electrical Engineering - Advisor: Nenghai Yu - Graduated from the Special Class for Gifted Young (at age 18) - Thesis Topic: <i>Combining Image and Textural Features for Product Search</i> (Outstanding Bachelor Thesis Award)	09/2011 – 02/2017 09/2009 – 07/2011 09/2005 – 07/2009
HONORS & AWARDS	JTFI AI + Science research grants (USD 51K) Singapore NRF Fellowship for Artificial Intelligence, Class of 2019 (SGD 3M, <i>declined</i>) PIMCO Postdoctoral Fellowship in Computing and Mathematical Sciences Swiss National Science Foundation Early Mobility Postdoctoral Fellowship (USD 85K) Best Paper Award, Constructive ML Workshop at ICML Google Europe Fellowship in Interactive Machine Learning Outstanding Bachelor Thesis Award, USTC Excellent Student-Cadrvve of Henan Province	2019 2019 2018 – 2019 2017 – 2018 2015 2014 – 2017 2009 2004
PROFESSIONAL SERVICE	Journal Reviewing - IEEE Transactions on Signal Processing (TSP), 2019 - Operations Research, 2018 - IEEE Transactions on Control of Network Systems (TCNS), 2018 - IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2017 - Journal of Machine Learning Research (JMLR), 2016, 2017 - IEEE Transactions on Robotics, 2017 - Journal of Artificial Intelligence Research (JAIR), 2016, 2019 - Machine Learning (MLJ), 2016 - Artificial Intelligence (AIJ), 2016 - IEEE Transactions on Multimedia (TMM), 2015 - Statistics and Computing (STCO), 2015 - Algorithmica, 2015, 2016	

Conference Reviewing

- International Conference on Artificial Intelligence and Statistics (AISTATS) 2019, 2020
- AAAI Conference on Artificial Intelligence (AAAI) 2018, 2019, 2020
- International Conference on Machine Learning (ICML) 2015, 2016, 2017, 2018 (outstanding reviewer)
- Neural Information Processing Systems (NeurIPS) 2013, 2014, 2015, 2016, 2019
- International Joint Conference on Artificial Intelligence (IJCAI) 2016
- Latin American Theoretical Informatics (LATIN) 2014
- Medical Image Computing and Computer Assisted Intervention (MICCAI) 2014
- Knowledge Discovery and Data Mining (KDD) 2014

OTHER SERVICES

Summer School/Workshop Organization and Coordination

- Caltech AI4Science Inaugural Workshop 2018, 2019
- Inaugural Summer School of the joint ETH/MPI Research Network on Learning Systems 2014

TEACHING ACTIVITIES

Teaching Assistant at ETH Zurich

- 252-0055-00L, Prof. Joachim Buhmann & Dr. S. Hamed Hassani, *Information Theory* Spring 2016
- 252-0055-00L, Dr. S. Hamed Hassani, *Information Theory and Coding* Spring 2015
- 263-5210-00L, Prof. Andreas Krause, *Probabilistic Foundations of A.I.* Fall 2015
- 263-5200-00L, Prof. Andreas Krause, *Data Mining: Learning from Large Data Sets* Spring 2015
- 263-5210-00L, Prof. Andreas Krause, *Probabilistic Foundations of A.I.* Fall 2014
- 263-5200-00L, Prof. Andreas Krause, *Data Mining: Learning from Large Data Sets* ETHZ, Spring 2014
- 263-5210-00L, Prof. Andreas Krause, *Probabilistic Foundations of A.I.* Fall 2013
- 263-5200-00L, Prof. Andreas Krause, *Data Mining: Learning from Large Data Sets* Spring 2013
- 263-5210-00L, Prof. Andreas Krause, *Probabilistic Foundations of A.I.* Fall 2012
- 263-5200-00L, Prof. Andreas Krause, *Data Mining: Learning from Large Data Sets* Spring 2012
- 263-5210-00L, Prof. Andreas Krause, *Probabilistic Foundations of A.I.* Fall 2011

Student Project Co-supervisor

- Emily Jin (Caltech high-school student volunteer; *active*) Summer 2018, 2019
Teaching Multiple Classes to Human Learners
- Nikhil Gohsh (Caltech summer undergraduate research program) Summer 2018, Fall 2018
Active Ordinal Embedding via One-bit Matrix Completion
- Ayya Alieva (Caltech undergraduate semester project) Spring 2018, 2019
Learning Active Learning from Data
- Shihan Su (Caltech M.Sc. semester project) 2017
Explanation-based Machine Teaching
- Siddhartha (ETHZ M.Sc thesis / semester project) 09/2015 – 05/2016
Efficient Active Object Class Discovery in ImageNet
- Johannes Kirschner (ETHZ M.Sc thesis) Fall 2015
Sequential Indirect Information Maximization
- Johannes Kirschner (ETHZ semester project) Spring 2015
Active Sets and Adaptive Submodularity
- Victor Carbune (ETHZ M.Sc thesis) 04/2013 – 10/2013
Active Learning for Source Localization
- Hiroaki Shioi (ETHZ M.Sc thesis) 09/2012 – 02/2013
Active Object Detection on Micro-UAV Data for Biodiversity Monitoring
- César Antonio Fuentes Montesinos (ETHZ M.Sc thesis) 04/2012 – 10/2012
Efficient Active Object Detection with Deformable Parts Model
- Nan Zhong (ETHZ M.Sc thesis) Spring 2012
Towards A Unified Approach to Diffusion Network Inference

INVITED TALKS

Interactive Learning and Decision Making with Machines and People

- *Pacific Investment Management Company, LLC (PIMCO)* (04/2019)
- *Purdue University* (04/2019)
- *New York University, Tandon School of Engineering (NYU Tandon)* (03/2019)

- *Institute of Science and Technology Austria (IST Austria)* (03/2019)
- *University of Waterloo* (02/2019)
- *Duke University* (02/2019)
- *University of North Carolina, Chapel Hill* (02/2019)
- *University of Chicago* (02/2019)
- *Rensselaer Polytechnic Institute* (02/2019)
- *University of California, Santa Barbara* (01/2019)
- *Nanyang Technological University* (01/2019)
- *Delft University of Technology (TU Delft)* (01/2019)
- *Chalmers University of Technology* (11/2018)
- *National University of Singapore* (11/2018)

Near-optimal Adaptive Information Acquisition: Theory and Applications

- *California Institute of Technology* (04/2017)
- *Allen Institute for Artificial Intelligence* (07/2016)
- *Microsoft Research Lab, Redmond* (07/2016)

Sequential Information Gathering With Correlated Tests

- *XRCE seminar, Xerox Research Centre Europe* (06/2016)

Active Detection via Adaptive Submodularity

- *SLI group seminar, Massachusetts Institute of Technology* (02/2014)

SOFTWARE &
TOOLS

Machine Teaching for Forgetful Human Learners.

- Teaching biodiversity
- Teaching German vocabulary

<https://www.teaching-biodiversity.cc/>
<https://www.teaching-german.cc/>

CONFERENCE
PUBLICATIONS

- (1) Farnam Mansouri, **Yuxin Chen**, Ara Vartanian, Xiaojin Zhu, Adish Singla. Preference-Based Batch and Sequential Teaching: Towards a Unified View of Models. *33rd Conference on Neural Information Processing Systems (NeurIPS)*, December 2019.
- (2) Nikhil Ghosh, **Yuxin Chen**, Yisong Yue. Landmark Ordinal Embedding. *33rd Conference on Neural Information Processing Systems (NeurIPS)*, December 2019.
- (3) Anette Hunziker, **Yuxin Chen**, Oisín Mac Aodha, Manuel Gomez Rodriguez, Andreas Krause, Pietro Perona, Yisong Yue, Adish Singla. Teaching Multiple Concepts to Forgetful Learners. *33rd Conference on Neural Information Processing Systems (NeurIPS)*, December 2019.
- (4) Baihong Jin, **Yuxin Chen**, Dan Li, Kameshwar Poolla, Alberto Sangiovanni-Vincentelli. An SVM-based Change Point Detection Approach Using Temporal Information. In the *IEEE International Conference on Prognostics and Health Management (PHM)*, San Francisco, CA, June 2019.
- (5) Mohamadreza Ahmadi, Bo Wu, **Yuxin Chen**, Yisong Yue, Ufuk Topcu. Barrier Certificates for Assured Machine Teaching. In the *American Control Conference (ACC)*, July 2019.
- (6) Jialin Song, **Yuxin Chen**, Yisong Yue. A General Framework for Multi-fidelity Bayesian Optimization with Gaussian Processes. In the *22nd International Conference on Artificial Intelligence and Statistics (AISTATS)* (acceptance rate 32.4%), Naha, Okinawa, Japan, April 2019.
- (7) Kevin Yang, **Yuxin Chen**, Alycia Lee, Yisong Yue. Batched Stochastic Bayesian Optimization via Combinatorial Constraints Design. In the *22nd International Conference on Artificial Intelligence and Statistics (AISTATS)* (acceptance rate 32.4%), Naha, Okinawa, Japan, April 2019.
- (8) **Yuxin Chen**, Adish Singla, Oisín Mac Aodha, Pietro Perona, Yisong Yue. Understanding the Role of Adaptivity in Machine Teaching: The Case of Version Space Learners. In the *32nd Conference on Neural Information Processing Systems (NeurIPS)* (acceptance rate 20.8%), Montreal, Canada, December 2018.
- (9) Oisín Mac Aodha, Shihan Su, **Yuxin Chen**, Pietro Perona, and Yisong Yue. Teaching Categories to Human Learners with Visual Explanations. In the *Conference on Computer Vision and Pattern Recognition (CVPR)* (acceptance rate 29.6%), Salt Lake City, UT, June 2018 (**Spotlight Presentation**).

- (10) **Yuxin Chen**, Oisín Mac Aodha, Shihan Su, Pietro Perona, Yisong Yue. Near-Optimal Machine Teaching via Explanatory Teaching Sets. In the *21st International Conference on Artificial Intelligence and Statistics (AISTATS)* (acceptance rate 33.2%), Playa Blanca, Lanzarote, Canary Islands, April 2018.
- (11) Marc Brockschmidt, **Yuxin Chen**, Pushmeet Kohli, Siddharth Krishna, Daniel Tarlow. Learning Shape Analysis. In the *24th Static Analysis Symposium (SAS)*, New York City, NY, August 2017.
- (12) **Yuxin Chen**, Jean-Michel Renders, Morteza Haghiri Chehreghani, and Andreas Krause. Near-optimal Value of Information via Dynamic Hypothesis Enumeration. In the *33rd Conference on Uncertainty in Artificial Intelligence (UAI)* (acceptance rate 30.8%), Sydney, Australia, August 2017.
- (13) **Yuxin Chen**, S. Hamed Hassani, and Andreas Krause. Near-optimal Bayesian Active Learning with Correlated Noisy Tests. In the *20th International Conference on Artificial Intelligence and Statistics (AISTATS)* (acceptance rate 31.7%), Fort Lauderdale, FL USA, April 2017.
- (14) **Yuxin Chen**, S. Hamed Hassani, Amin Karbasi, Andreas Krause. Sequential Information Maximization: When is Greedy Near-optimal?. In the *28th Annual Conference on Learning Theory (COLT)* (acceptance rate 39.77%), Paris, France, July 2015.
- (15) **Yuxin Chen**, Shervin Javdani, Amin Karbasi, Drew Bagnell, Siddhartha Srinivasa, Andreas Krause. Submodular Surrogates for Value of Information. In the *29th AAAI Conference on Artificial Intelligence (AAAI)* (acceptance rate 26.67%), Austin, TX, January 2015.
- (16) Shervin Javdani, **Yuxin Chen**, Amin Karbasi, Andreas Krause, Drew Bagnell, Siddhartha Srinivasa. Near-optimal Bayesian Active Learning for Decision Making. In the *17th International Conference on Artificial Intelligence and Statistics (AISTATS)* (acceptance rate 35.8%), Reykjavik, Iceland, April 2014.
- (17) **Yuxin Chen**, Hiroaki Shioi, Cesar Antonio Fuentes Montesinos, Lian Pin Koh, Serge Wich, Andreas Krause. Active Detection via Adaptive Submodularity. In the *31th International Conference on Machine Learning (ICML)* (acceptance rate 25%), Beijing, China, June 2014.
- (18) **Yuxin Chen**, Andreas Krause. Near-optimal Batch Mode Active Learning and Adaptive Submodular Optimization. In Proceedings of the *30th International Conference on Machine Learning (ICML)* (acceptance rate 24%), Atlanta, GA, June 2013.
- (19) Yuanliang Meng, Junyan Li, Patrick Denton, **Yuxin Chen**, Bo Luo, Paul Selden, Xue-wen Chen. IPKB: A Digital Library for Invertebrate Paleontology. In *ACM/IEEE - CS Joint Conference on Digital Libraries (JCDL)* (acceptance rate 28%), Washington DC, June 2012
- (20) **Yuxin Chen**, Bo Luo. S2A: Secure Smart Household Appliances. Full paper (acceptance rate: 18.58%) at the *2nd ACM Conference on Data and Application Security and Privacy (CODASPY)*, San Antonio, TX, February 2012
- (21) **Yuxin Chen**, Brian Potetz, Bo Luo and Xue-wen Chen. Cephalometric Landmark Tracing Using Deformable Templates. In Proceedings of the *1st IEEE Conference on Healthcare Informatics, Imaging, and Systems Biology (HISB)*, San Jose, CA, July 2011.
- (22) Fengjun Li, **Yuxin Chen**, Bo Luo, Dongwon Lee and Peng Liu. Privacy-Preserving Group Linkage. Full paper in Proceedings of the *23rd Scientific and Statistical Database Management Conference (SSDBM)*, Portland, OR, July 2011.
- (23) **Yuxin Chen**, Nenghai Yu, Bo Luo, and Xue-wen Chen. iLike: Integrating Visual and Textual Features for Vertical Search. Full paper (acceptance rate: 17.48%) at *ACM Multimedia Conference (ACMMM)*, Firenze, Italy, October 2010.
- (24) **Yuxin Chen**, S. Hamed Hassani, and Andreas Krause. Near-optimal Bayesian Active Learning with Correlated Noisy Tests. In *Electronic Journal of Statistics (EJS)*, 2017.
- (25) **Yuxin Chen**, Hariprasad Sampathkumar, Bo Luo, and Xue-wen Chen. iLike: Bridging the semantic gap in vertical image search by integrating text and visual features. In *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, Vol. 25 (10) pp. 2257-2270, October 2013.

- THESIS (26) **Yuxin Chen**. Near-optimal Adaptive Information Acquisition: Theory and Applications. *PhD Thesis, ETH Zurich*, December 2016.
- (27) **Yuxin Chen**. Understanding User Intentions in Vertical Image Search. *Master Thesis, The University of Kansas*, August 2011.
- PATENTS (28) Jean-Michel Renders, **Yuxin Chen**. Dynamic Resampling for Sequential Diagnosis and Decision Making. *Patent App. US20180218264A1*, August 2018.
- (29) Morteza Haghiri Chehreghani, **Yuxin Chen**. Method of Trip Prediction by Leveraging Trip Histories from Neighboring Users. *Patent App. US20180012141*, Jan 2018.
- WORKSHOP CONTRIBUTIONS (30) Kevin Yang, **Yuxin Chen**, Alycia Lee, Yisong Yue. Batched Stochastic Bayesian Optimization via Combinatorial Constraints Design. In the *NIPS Workshop on Machine Learning for Molecules and Materials*, Montreal, Canada, December 2018.
- (31) Jialin Song, Yury S. Tokpanov, **Yuxin Chen**, Dagny Fleischman, Kate T. Fountaine, Harry A. Atwater, Yisong Yue. Optimizing Photonic Nanostructures via Multi-fidelity Gaussian Processes. In the *NIPS Workshop on Machine Learning for Molecules and Materials*, Montreal, Canada, December 2018.
- (32) Shihan Su, **Yuxin Chen**, Oisín Mac Aodha, Pietro Perona, Yisong Yue. Interpretable Teaching of Visual Categories to Humans Learner. In the *NIPS Workshop on Teaching Machines, Robots, and Humans*, Long Beach, California, December 2017.
- (33) Marc Brockschmidt, **Yuxin Chen**, Byron Cook, Pushmeet Kohli, Daniel Tarlow. Learning to Decipher the Heap for Program Verification. In the *ICML Workshop on Constructive Machine Learning (CML)*, Lille, France, July 2015 (**Winner of the Best Paper Award**).
- (34) Shervin Javdani, **Yuxin Chen**, Amin Karbasi, Drew Bagnell, Siddhartha Srinivasa, Andreas Krause. Decision Region Determination for Touch-based Localization. In the *RSS Workshop on Information-based Grasp and Manipulation Planning*, July 2014.
- (35) **Yuxin Chen**, Hiroaki Shioi, Cesar Antonio Fuentes Montesinos, Lian Pin Koh, Serge Wich, Andreas Krause. Active Detection for Biodiversity Monitoring via Adaptive Submodularity. In the *NIPS Workshop on Machine Learning for Sustainability (MLSUST)*, Lake Tahoe, NV, December 2013.
- (36) **Yuxin Chen**, Andreas Krause. Near-optimal Batch Mode Active Learning and Stochastic Optimization. In the *4th NIPS Workshop on Discrete Optimization in Machine Learning Structure and Scalability (DISCML)*, Lake Tahoe, NV, December 2012.