Bert Huang, Ph.D.

Assistant Professor, Department of Computer Science
Virginia Tech, Blacksburg, VA 24060
bhuang@vt.edu, http://berthuang.com

Research Interests

Machine learning, structured prediction, multi-relational learning, large-scale machine learning, algorithmic fairness, weak supervision, probabilistic inference, belief propagation, network analysis, graph mining, combinatorial optimization, computational learning theory, social media analysis, data science, big data, computational social science.

Education

Doctor of Philosophy, Computer Science   Columbia University, 2011

>   Thesis: *Learning with Degree-Based Subgraph Estimation*
>   Advised by Tony Jebara and Ansaf Salleb-Aouissi

Master of Science, Computer Science   Columbia University, 2006

Bachelor of Science, Computer Science, Philosophy   Brandeis University, 2004

Employment History

Assistant Professor. Virginia Tech Department of Computer Science.   Spring 2015–Present

Postdoctoral Research Associate. University of Maryland Dept. of Computer Science.   Fall 2011–Fall 2014

Graduate Research Assistant. Columbia University Dept. of Computer Science.   Fall 2006–Summer 2011

Research Intern. IBM Research, Thomas J. Watson Research Center.   Summer 2010

Lecturer. Columbia University Department of Computer Science.   Fall 2008–Spring 2010

Teaching

Virginia Tech Department of Computer Science

>   *Introduction to Artificial Intelligence*. Fall 2018.
>
>   *Optimization in Machine Learning*. Spring 2018.
>
>   *Machine Learning*. Fall 2017.
>
>   *Data Analytics II*. Spring 2017.
>
>   *Introduction to Artificial Intelligence*. Fall 2016.
>
>   *Graphical Models and Structured Prediction*. Spring 2016.
>
>   *Machine Learning*. Fall 2015.
>
>   *Introduction to Artificial Intelligence*. Spring 2015.

University of Maryland Department of Computer Science

>   *Link Mining* (joint with Lise Getoor). Spring 2012.

Columbia University Department of Computer Science

>   *Object Oriented Programming and Design in Java.* Spring 2010.
>
>   *Data Structures in Java.* Fall 2009.
>
>   *Data Structures and Algorithms.* Spring 2009.
>
>   *Introduction to Computer Science and Programming in C.* Fall 2008.
>
>   (Teaching Assistant) *Machine Learning.* Spring 2007.
>
>   (Teaching Assistant) *Introduction to Computer Science and Programming in C.* Spring 2006.

Student Mentoring

As Advisor

Walid Chaabene. Computer Science MS (Graduated 2017). Now applied scientist at Amazon.

Reid Bixler. Computer Science MS student.

You Lu. Computer Science PhD student.

Chidubem Arachie. Computer Science PhD student.

Shuangfei Fan. Computer Science PhD student.

Elaheh Raisi. Computer Science PhD student.

Sirui Yao. Computer Science PhD student.

As Independent Study Director

Alyssa Herbst. Computer Science BS/MS student.

Andrew Marmon. Computer Science BS student (Graduated 2017).

As Advising Committee Member

Ahmed Ibrahim. ECE PhD student. Advised by A. Lynn Abbott.

Aroma Mahendru. ECE MS (2017). Advised by Dhruv Batra.

Jason Granstedt. ECE MS student. Advised by Dhruv Batra.

Michael Cogswell. Computer Science MS (Graduated 2016). Advised by Dhruv Batra.

Saurabh Chakravarty. Computer Science MS student (Graduated 2017). Advised by Ed Fox.

Yufeng Ma. Computer Science PhD student chaired by Ed Fox and Patrick Fan.

Xuan Zhang. Computer Science PhD student committee co-chaired by Ed Fox and Patrick Fan.

Fatma Elzahraa Sobhy Eid. Computer Science PhD (Graduated 2017). Advised by Lenwood Heath.

Jin-Woo Choi. ECE PhD student committee co-chaired by Jia-Bin Huang and Aisling Kelliher.

Kayla Straub. ECE MS (Graduated 2016). Advised by Robert McGwier.

Xiao Lin. ECE PhD student. Advised by Devi Parikh.

Peng Zhang. ECE PhD student. Advised by Devi Parikh.

Jinshan Liu. ECE PhD student. Advised by Jerry Park.

Yao Zhang. Computer Science PhD student. Advised by Aditya Prakash.

Azam Sadat Zava Moosavi. Computer Science PhD student (Graduated 2018). Advised by Adrian Sandu.

Pakriti Gupta. ECE MS student (Graduated 2017). Advised by Haibo Zhang.

Mohammad Shabbir Hasan. Computer Science PhD student. Advised by Liqing Zhang.

Other Advising Roles

AutoDrive Challenge Faculty Mentor. SAE International's Collegiate Design Series three-year autonomous vehicle competition. 2017–present

PhD qualifying committee chair for data, information, knowledge, and libraries, 2017.

Virginia Tech Undergraduate Research in Computer Science (VTURCS) Symposium Faculty Judge, 2016.

Awards

Excellence in Access and Inclusion Award Virginia Tech Office of Services for Students with Disabilities, 2018.

Best Paper Award. IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM) 2017.

Reviewer Award. International Conference on Machine Learning, 2015.

Andrew P. Kosoresow Memorial Award for Excellence in Teaching and Service. Columbia University Department of Computer Science, 2010.

Service Award. Columbia University Department of Computer Science, 2009.

Recent and Key Collaborators

Stephen Bach, Jordan Boyd-Graber, Hal Daumé III, Shobeir Fakhraei, Lise Getoor, Jennifer Golbeck, Dan Goldwasser, Phil Gross, Tony Jebara, Angelika Kimmig, Ben London, Michele Merler, Hui Miao, Jay Pujara, Naren Ramakrishnan, Arti Ramesh, Cynthia Rudin, Ansaf Salleb-Aouissi, Blake Shaw, Ben Taskar, David Waltz, Lexing Xie.

Publications

Refereed Journal Papers

1. *Recurrent Collective Classification*
   Shuangfei Fan, Bert Huang. Knowledge and Information Systems. To appear.

2. *Weakly Supervised Cyberbullying Detection with Participant-Vocabulary Consistency*
   Elaheh Raisi, Bert Huang. Social Network Analysis and Mining. To appear.

3. *Hinge-Loss Markov Random Fields and Probabilistic Soft Logic*
   Stephen H. Bach, Matthias Broecheler, Bert Huang, Lise Getoor. Journal of Machine Learning Research (JMLR). Vol. 18, No. 109. Pages 1–67.

4. *Capturing Planned Protests from Open Source Indicators*
   Sathappan Muthiah, Bert Huang, Jaime Arredondo, David Mares, Lise Getoor, Graham Katz, Naren Ramakrishnan. Artificial Intelligence Magazine. Vol. 37, No. 2, Summer Issue. Pages 63–75.

5. *Stability and Generalization in Structured Prediction*
   Ben London, Bert Huang, Lise Getoor. Journal of Machine Learning Research (JMLR). Vol. 17, No. 222. Pages 1–52.

6. *Network-Based Drug-Target Interaction Prediction with Probabilistic Soft Logic*
   Shobeir Fakhraei, Bert Huang, Louiqa Raschid, Lise Getoor. IEEE/ACM Transactions on Computational Biology and Bioinformatics. Vol. 11, No. 5, October 2014. Pages 775–787. **Featured Article**.

7. *Semantic Model Vectors for Complex Video Event Recognition*
   Michele Merler, Bert Huang, Lexing Xie, Gang Hua, Apostol Natsev. IEEE Transactions on Multimedia. Vol. 14, No. 1, February 2012. Pages 88–101.

8. *Machine Learning for the New York City Power Grid*
   Cynthia Rudin, David Waltz, Roger Anderson, Albert Boulanger, Ansaf Salleb-Aouissi, Maggie Chow, Haimonti Dutta, Philip Gross, Bert Huang, Steve Ierome, Delfina Isaac, Arthur Kressner, Rebecca Passonneau, Axinia Radeva, and Leon Wu. IEEE Transactions on Pattern Analysis and Machine Intelligence. Vol. 34, No. 2, February 2012. Pages 328–345.

Book Chapters

1. *Weak Supervision and Machine Learning for Online Harassment Detection*
   Bert Huang, Elaheh Raisi. Editor: Jennifer Golbeck. *Online Harassment* (2018). Pages 5–28. Springer.

Refereed Full Conference Papers

Heavily refereed papers in conference proceedings. Acceptance rates are listed where available.

1. *Weakly Supervised Cyberbullying Detection using Co-trained Ensembles of Embedding Models*
   Elaheh Raisi, Bert Huang. IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM) 2018. Oral presentation. Acceptance rate: 15%.

2. *Sparse-Matrix Belief Propagation*
   Reid Bixler, Bert Huang. International Conference on Uncertainty in Artificial Intelligence (UAI) 2018. To appear. Acceptance rate: 31%.

3. *Beyond Parity: Fairness Objectives for Collaborative Filtering*
   Sirui Yao, Bert Huang. Advances in Neural Information Processing Systems (NIPS) 2017. Pages 2921–2930. Acceptance rate: 21%.

4. *Cyberbullying Detection with Weakly Supervised Machine Learning*
   Elaheh Raisi and Bert Huang. IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM) 2017. Oral presentation. Pages 409–416. Acceptance rate: 19%. **Best Paper Award**.

5. *Paired-Dual Learning for Training Hinge-Loss MRFs with Latent Variables*
   Stephen Bach, Bert Huang, Jordan Boyd-Graber, Lise Getoor. International Conference on Machine Learning (ICML) 2015. Oral presentation. Pages 381–390. Acceptance rate: 26%.

6. *The Benefits of Learning with Strongly Convex Approximate Inference*
   Ben London, Bert Huang, Lise Getoor. International Conference on Machine Learning (ICML) 2015. Oral presentation. Pages 410–418. Acceptance rate: 26%.

7. *Joint Models of Disagreement and Stance in Online Debate*
   Dhanya Sridhar, James Foulds, Bert Huang, Lise Getoor, Marilyn Walker. International Joint Conference on Natural Language Processing (ACL) 2015. Oral presentation. Pages 116–125. Acceptance rate: 25%.

8. *Unifying Local Consistency and MAX SAT Relaxations for Scalable Inference with Rounding Guarantees*
   Stephen Bach, Bert Huang, Lise Getoor. International Conference on Artificial Intelligence and Statistics (AISTATS) 2015. Pages 46–55. Oral presentation. Acceptance rate: 6%.

9. *Planned Protest Modeling in News and Social Media*
   Sathappan Muthiah, Bert Huang, Jaime Arredondo, David Mares, Lise Getoor, Graham Katz, Naren Ramakrishnan. Conference on Innovated Applications of Artificial Intelligence (IAAI) 2015. Pages 3920–3927. **Deployed Application Award**.

10. *Discovering Evolving Political Vocabulary in Social Media*
    Aravindan Mahendiran, Wei Wang, Jaime Arredondo, Bert Huang, Lise Getoor, David Mares, Naren Ramakrishnan. International Conference on Behavioral, Economic, and Socio-Cultural Computing (BESC) 2014. Pages 1–7. Acceptance rate: 16%.

11. *'Beating the News' With EMBERS: Forecasting Civil Unrest Using Open Source Indicators*
    Naren Ramakrishnan, Patrick Butler, Nathan Self, Rupinder Khandpur, Parang Saraf, Wei Wang, Jose Cadena, Anil Vullikanti, Gizem Korkmaz, Chris Kuhlman, Achla Marathe, Liang Zhao, Ting Hua, Bert Huang, Aravind Srinivasan, Khoa Trinh, Lise Getoor, Graham Katz, Andy Doyle, Chris Ackermann, Ilya Zavorin, Jim Ford, Kristen Summers, Youssef Fayed, Jaime Arredondo, Dipak Gupta, David Mares. ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2014. Pages 1799–1808. Acceptance rate: 15%.

12. *Learning Latent Engagement Patterns of Students in Online Courses*
    Arti Ramesh, Dan Goldwasser, Bert Huang, Hal Daumé III, Lise Getoor. AAAI Conference on Artificial Intelligence 2014. Oral presentation. Pages 1272–1278. Acceptance rate: 28%.

13. *PAC-Bayesian Collective Stability*
    Ben London, Bert Huang, Ben Taskar, Lise Getoor. International Conference on Artificial Intelligence and Statistics (AISTATS) 2014. Pages 585–594. Acceptance rate: 36%.

14. *A Hypergraph-Partitioned Vertex Programming Approach for Large-Scale Consensus Optimization*
    Hui Miao, Xiangyang Liu, Bert Huang, Lise Getoor. IEEE International Conference on Big Data 2013. Pages 563–568. Acceptance rate: 20%.

15. *Hinge-Loss Markov Random Fields: Convex Inference for Structured Prediction*
    Stephen Bach, Bert Huang, Ben London, Lise Getoor. Conference on Uncertainty in Artificial Intelligence (UAI) 2013. Pages 32–41. Acceptance rate: 31%.

16. *Collective Stability in Structured Prediction: Generalization from One Example*
    Ben London, Bert Huang, B. Taskar, Lise Getoor. International Conference on Machine Learning (ICML) 2013. Oral presentation. Pages 828–836. Acceptance rate: 24%.

17. *A Flexible Framework for Probabilistic Models of Social Trust*
Bert Huang, A. Kimmig, Lise Getoor, J. Golbeck. International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction (SBP) 2013. Pages 265–273. Oral presentation. Acceptance rate: 24%.

18. *Learning a Distance Metric from a Network*
B. Shaw, Bert Huang, Tony Jebara. Neural Information Processing Systems (NIPS) 2011. Pages 1899–1907. Acceptance rate: 22%.

19. *Fast b-Matching via Sufficient Selection Belief Propagation.*
Bert Huang, Tony Jebara. International Conference on Artificial Intelligence and Statistics (AISTATS) 2011. Pages 361–369. Acceptance rate: 28%.

20. *Collaborative Filtering via Rating Concentration*
Bert Huang, Tony Jebara. International Conference on Artificial Intelligence and Statistics (AISTATS) 2010. Pages 334–341. Acceptance rate: 40%.

21. *Exact Graph Structure Estimation with Degree Priors*
Bert Huang, Tony Jebara. International Conference on Machine Learning and Applications (ICMLA) 2009. Oral presentation. Pages 111–118. Acceptance rate 46%.

22. *Alive on Back-Feed Culprit Identification via Machine Learning*
Bert Huang, Ansaf Salleb-Aouissi, Phil Gross. International Conference on Machine Learning and Applications (ICMLA) 2009. Special Session on Machine Learning in Energy Applications. Pages 725–730. Pages Acceptance rate: 46%.

23. *Discovering Characterization Rules from Rankings*
A. Salleb-Aouissi, Bert Huang, D. Waltz. International Conference on Machine Learning and Applications (ICMLA) 2009. Oral presentation. Pages 154–161. Acceptance rate: 46%.

24. *Maximum Entropy Density Estimation with Incomplete Presence-Only Data*
Bert Huang, A. Salleb-Aouissi. International Conference on Artificial Intelligence and Statistics (AISTATS) 2009. Acceptance rate: 40%.

25. *Vers des Machines Vecteurs Support "Actionnables": Une Approche Fonde sur le Classement*
A. Salleb-Aouissi, Bert Huang, D. Waltz. Extraction et Gestion des Connaissances (EGC) 2008. Oral presentation. **Best Paper Award** (Prix EGC "Meilleur article académique").

26. *Loopy Belief Propagation for Bipartite Maximum Weight b-Matching*
Bert Huang, Tony Jebara. International Conference on Artificial Intelligence and Statistics (AISTATS) 2007. Oral presentation. Pages 195–202. Acceptance rate: 13%.

Refereed Short Conference Papers, Workshop Papers, and Abstracts

1. *Smart HVAC Systems—Adjustable Airflow Direction*
Milad Abedi, Farrokh Jazizadeh, Bert Huang, Francine Battaglia. International Workshop on Intelligent Computing in Engineering, 2018.

2. *Establishing a Virtual Social Laboratory for Investigating Cyberviolence*
Elaheh Raisi, Leanna Ireland, Bert Huang, James Hawdon, Anthony Peguero. Southern Sociological Society Annual Meeting, 2018.

3. *Machine Learning Approaches for Automated Detection of Cyberviolence*
Bert Huang, Anthony Peguero, James Hawdon. Southern Sociological Society Annual Meeting, 2018.

4. *The Detection of Patellar Tendinopathy Using Machine Learning Analysis of Ultrasound Images*
Ellen Hammet, Grady Iliff, Sabeh Rezvani, Bert Huang, Al Kozar, Vincent Wang. Orthopaedic Research Society Annual Meeting, 2018.

5. *Co-trained Ensemble Models for Weakly Supervised Cyberbullying Detection*
Elaheh Raisi, Bert Huang. NIPS Workshop on Learning with Limited Labeled Data: Weak Supervision and Beyond, 2017. **Best Paper Award**.

6. *A Weakly Supervised Deep Model for Cyberbullying Detection*
Elaheh Raisi, Bert Huang. Women in Machine Learning Workshop, 2017.

7. *Fairness and Accuracy in Recommendation with Imbalanced Data Sparsity*
   Sirui Yao, Bert Huang. Women in Machine Learning Workshop, 2017.

8. *New Fairness Metrics for Recommendation that Embrace Differences*
   Sirui Yao, Bert Huang. Workshop on Fairness, Accountability, and Transparency in Machine Learning (FATML), KDD 2017 Workshop.

9. *Recurrent Collective Classification*
   Shuangfei Fan, Bert Huang. International School and Conference on Network Science (NetSci) and Satellite on Machine Learning in Network Science (MLNS), 2017.

10. *Training Iterative Collective Classifiers with Back-Propagation*
    Shuangfei Fan, Bert Huang. KDD Workshop on Mining and Learning with Graphs, 2016.

11. *Cyberbullying Identification Using Participant-Vocabulary Consistency*
    Elaheh Raisi, Bert Huang. #Data4Good: Machine Learning in Social Good Applications, ICML Workshop, 2016.

12. *Machine Learning for Detecting Detrimental Online Social Behavior*
    Bert Huang, Elaheh Raisi. Computing Community Consortium (CCC) Symposium on Computing Research: Addressing National Priorities and Societal Needs. May 2016.

13. *Rounding Guarantees for Message-Passing MAP Inference with Logical Dependencies*
    Stephen Bach, Bert Huang, Lise Getoor. NIPS Workshop on Discrete and Combinatorial Problems in Machine Learning (DISCML) 2014.

14. *On the Strong Convexity of Variational Inference*
    Ben London, Bert Huang, Lise Getoor. NIPS Workshop on Advances in Variational Inference 2014.

15. *Collective Classification of Stance and Disagreement in Online Debate Forums*
    Dhanya Sridhar, James Foulds, Bert Huang, Marilyn Walker, Lise Getoor. Bay Area Machine Learning Symposium 2014.

16. *Probabilistic Soft Logic for Social Good*
    Stephen Bach, Bert Huang, Lise Getoor. KDD Workshop on Data Science for Social Good 2014.

17. *Understanding MOOC Discussion Forums using Seeded LDA*
    Arti Ramesh, Dan Goldwasser, Bert Huang, Hal Daumé III, Lise Getoor. ACL Workshop on Innovated Use of NLP for Building Educational Applications 2014.

18. *Uncovering Hidden Engagement Patterns for Predicting Learner Performance in MOOCs*
    Arti Ramesh, Dan Goldwasser, Bert Huang, Hal Daume III, Lise Getoor. ACM Conference on Learning at Scale. Work-in-Progress paper.

19. *PAC-Bayes Generalization Bounds for Randomized Structured Prediction*
    Ben London, Bert Huang, B. Taskar, Lise Getoor. NIPS 2013 Workshop on Perturbations, Optimization, and Statistics. Oral presentation.

20. *Large-Margin Structured Learning for Link Ranking*
    Stephen Bach, Bert Huang, Lise Getoor. NIPS 2013 Workshop on Frontiers of Network Analysis. **Best Paper Award**.

21. *Collective Inference and Multi-Relational Learning for Drug-Target Interaction Prediction*
    Shobeir Fakhraei, Bert Huang, Lise Getoor. NIPS 2013 Workshop on Machine Learning in Computational Biology.

22. *Modeling Learner Engagement in MOOCs using Probabilistic Soft Logic*
    Arti Ramesh, Dan Goldwasser, Bert Huang, Hal Daumé III, Lise Getoor. NIPS 2013 Workshop on Data Driven Education.

23. *Collective Activity Detection Using Hinge-Loss Markov Random Fields*
    Ben London, Samis Khamis, Stephen Bach, Bert Huang, Lise Getoor, Larry Davis. CVPR 2013 Workshop on Structured Prediction. Oral presentation.

24. *Fairness in Assignment Markets with Dual Decomposition*
    Bert Huang. ICML 2013 Workshop on Peer Reviewing and Publication Models. Oral presentation.

25. *Learning Latent Groups with Hinge-Loss Markov Random Fields*
    Stephen Bach, Bert Huang, Lise Getoor. ICML 2013 Workshop on Interactions between Inference and Learning (Inferning).

26. *Empirical Analysis of Collective Stability*
    Bert Huang, Ben London, Ben Taskar, Lise Getoor. ICML 2013 Workshop on Structured Learning (SLG).

27. *Social Group Modeling with Probabilistic Soft Logic.*
    Bert Huang, Stephen Bach, Eric Norris, Jay Pujara, Lise Getoor. NIPS 2012 Workshop on Social Network and Social Media Analysis: Methods, Models, and Applications.

28. *Improved Generalization Bounds for Large-Scale Structured Prediction*
    Ben London, Bert Huang, Lise Getoor. NIPS 2012 Workshop on Algorithmic and Statistical Approaches for Large Social Networks.

29. *Multi-Relational Weighted Tensor Decomposition*
    Ben London, Thodoris Rekatsinas, Bert Huang, Lise Getoor. NIPS 2012 Workshop on Spectral Learning.

30. *A Short Introduction to Probabilistic Soft Logic*
    Angelika Kimmig, Stephen Bach, Matthias Broecheler, Bert Huang, Lise Getoor. NIPS 2012 Workshop on Probabilistic Programming: Foundations and Applications. Oral presentation.

31. *Probabilistic Soft Logic for Trust Analysis in Social Networks*
    Bert Huang, Angelika Kimmig, Lise Getoor, Jennifer Golbeck. UAI 2012 Workshop on Statistical Relational Artificial Intelligence (StaRAI).

32. *Query-Driven Active Surveying for Collective Classification*
    Galileo Namata, Ben London, Lise Getoor, Bert Huang. ICML 2012 Workshop on Mining and Learning with Graphs (MLG). Oral presentation.

33. *Learning a Degree-Augmented Distance Metric from a Network*
    Bert Huang, Blake Shaw, Tony Jebara. NIPS 2011 Workshop, Beyond Mahalanobis: Supervised Large-Scale Learning of Similarity. Oral presentation.

34. *Network Prediction with Degree Distributional Metric Learning*
    Bert Huang, Blake Shaw, Tony Jebara. Interdisciplinary Workshop on Information and Decision in Social Networks (WIDS) 2011.

35. *Learning with Subgraph Estimation and Degree Priors*
    Bert Huang, Tony Jebara. New York Academy of Sciences Machine Learning Symposium 2009.

36. *Maximum Likelihood Graph Estimation with Degree Priors*
    Bert Huang, Tony Jebara. NIPS 2008 Workshop on Analyzing Graphs. Oral presentation.

37. *Approximating the Permanent with Belief Propagation*
    Bert Huang, Tony Jebara. New York Academy of Sciences Machine Learning Symposium 2007.

38. *Maximum Entropy Density Estimation with Incomplete Data*
    Bert Huang, Ansaf Salleb-Aouissi. New York Academy of Sciences Machine Learning Symposium 2007.

39. *Maximum Weight b-Matching via Belief Propagation*
    Bert Huang, Tony Jebara. New York Academy of Sciences Machine Learning Symposium 2006.

Unrefereed Technical Reports

1. *Online Edge Grafting for Efficient MRF Structure Learning*
   Walid Chaabene, Bert Huang. https://arxiv.org/abs/1705.09026

2. *Graph-Based Generalization Bounds for Learning Binary Relations*
   Ben London, Bert Huang, Lise Getoor. University of Maryland Department of Computer Science Technical Report, 2013. http://arxiv.org/abs/1302.5348

3. *Multi-Relational Learning Using Weighted Tensor Decomposition with Modular Loss*
   Ben London, Thodoris Rekatsinas, Bert Huang, Lise Getoor. University of Maryland Department of Computer Science Technical Report, 2013. http://arxiv.org/abs/1303.1733

4. *IBM Research TRECVID-2010 Video Copy Detection and Multimedia Event Detection System*
   Apostol Natsev, John Smith, Matthew Hill, Gang Hua, Bert Huang, Michele Merler, Lexing Xie, Hua Ouyang, Mingyuan Zhou. Notebook Paper, National Institute of Standards and Technology, 2010.

5. *Approximating the Permanent with Belief Propagation*
   Bert Huang, Tony Jebara. Columbia University Department of Computer Science Technical Report, 2009. http://arxiv.org/abs/0908.1769

Research Talks

1. *Weakly Supervised Learning for Detection of Online Harassment*
   University of Maryland Computational Linguistics and Information Processing Seminar. College Park, MD. November 2017.

2. *Weakly Supervised Learning for Detection of Online Harassment*
   Charlottesville Mobile App Designers and Developers MeetUp, hosted by WillowTree. December, 2017.

3. *A Weakly Supervised Approach for Adaptive Detection of Cyberbullying Roles*
   International Workshop on Cybersafety, CIKM Workshop. Indianapolis, IN. October 2016.

4. *Cyberbullying Identification Using Participant-Vocabulary Consistency*
   #Data4Good: Machine Learning in Social Good Applications, ICML Workshop. June 2016.

5. *Structured Machine Learning for the Complex World.* Virginia Tech Center for Embedded Systems for Critical Applications (CESCA) Seminar. April 2015.

6. *Probabilistic Soft Logic.* Virginia Tech Northern Virginia Campus Seminar. October 2014.

7. *Using Probabilistic Soft Logic to Model Group Behavior.* INFORMS Annual Meeting 2013. Invited Speaker Session on Virtual Communities and Collective Action. Minneapolis, MN. October 2013.

8. *Fairness in Assignment Markets with Dual Decomposition.* ICML Workshop on Peer Reviewing and Publishing Models, Atlanta, GA. June 2013.

9. *A Flexible Framework for Probabilistic Models of Social Trust.* International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction (SBP), Washington, DC. April 2013.

10. *Learning a Degree-Augmented Distance Metric from a Network.* NIPS Workshop, Beyond Mahalanobis: Supervised Large-Scale Learning of Similarity, Sierra Nevada, Spain. December 2011.

11. *Learning with Degree-Based Subgraph Estimation.* University of Maryland Department of Computer Science, College Park, MD. June 2011.

12. *Learning with Degree-Based Subgraph Estimation.* Auton Lab, Carnegie Mellon University Robotics Institute, Pittsburgh, PA. June 2011.

13. *Exact Graph Structure Estimation with Degree Priors.* International Conference on Machine Learning and Applications (ICMLA), Miami, FL. December 2009.

14. *Loopy Belief Propagation for Bipartite Maximum Weight b-Matching.* International Conference on Artificial Intelligence and Statistics (AISTATS), San Juan, Puerto Rico. March 2007.

Patents

Machine Learning for Power Grids
   Roger Anderson, Albert Boulanger, Cynthia Rudin, Ansaf Salleb-Aouissi, David Waltz, Maggie Chow, Haimonti Dutta, Philip Gross, Bert Huang, Steve Ierome, Delfina Isaac, Arthur Kressner, Rebecca Passonneau, Axinia Radeva, Leon Wu, Peter Hofmann, Frank Dougherty. The Trustees of Columbia University in the City of New York, 2012.

b-Matching Using Sufficient Selection Belief Propagation
   Tony Jebara, Bert Huang. The Trustees of Columbia University in the City of New York, 2012.

Systems and Methods for Analyzing Spatiotemporally Ambiguous Events
> Arun Hampapur, Bert Huang, Lexing Xie, Yada Zhu. International Business Machines Corporation (IBM), 2012.

Network Information Methods Devices and Systems
> Tony Jebara, Blake Shaw, Bert Huang. The Trustees of Columbia University in the City of New York, 2011.

Belief Propagation for Generalized Matching
> Tony Jebara, Bert Huang. The Trustees of Columbia University in the City of New York, 2010.

Machine Optimization Devices, Methods, and Systems
> Tony Jebara, Bert Huang. The Trustees of Columbia University in the City of New York, 2008.

Academic Service

Action Editor
Journal of Machine Learning Research (JMLR), 2015–present.

Organizer
Workshop on Deep Structured Prediction. Co-located with ICML 2017.

Second International Workshop on Computational Methods for Cybersafety. Co-located with WWW 2017.

Third International Workshop on Computational Methods for Cybersafety. Co-located with The WebConference (WWW) 2018.

Eleventh Workshop on Mining and Learning with Graphs (MLG). Co-located with KDD 2013.

National Science Foundation Peer Review Panelist
Division of Information and Intelligent Systems (IIS) 2013, 2014, 2016.

Journal Reviewer
Information Systems Frontiers, 2017, 2018.

Data Mining and Knowledge Discovery (DAMI) 2014, 2018.

Journal of Machine Learning Research (JMLR) 2011, 2012, 2013.

IEEE Transactions on Knowledge and Data Engineering (TKDE) 2011, 2012.

IEEE Transactions on Information Theory (T-IT) 2011.

International Journal on Computational Statistics (CompStat) 2010, 2011.

IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI) 2011.

Conference Area Chair / Senior Program Committee Member
Neural Information Processing Systems (NIPS) 2014, 2017.

International Conference on Machine Learning (ICML) 2014.

Conference Program Committee Member
International Conference on Machine Learning (ICML) 2012, 2013, 2015, 2016.

Uncertainty in Artificial Intelligence (UAI) 2010, 2011, 2012, 2013, 2014, 2015, 2016.

International Conference on Artificial Intelligence and Statistics (AISTATS) 2013, 2014, 2015.

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2015

International Conference on Web Search and Data Mining (WSDM) 2014

International Conference on Pattern Recognition Applications and Methods (ICPRAM) 2012.

International Joint Conference on Artificial Intelligence (IJCAI) 2015

Workshop Program Committee Member

Twelfth International Workshop on Mining and Learning with Graphs (MLG). Co-located with KDD 2016.

International Workshop on Learning Tractable Probabilistic Models (LTPM) 2014.

Conference Peer Reviewer

Neural Information Processing Systems (NIPS) 2010, 2016.

IEEE International Symposium on Information Theory (ISIT) 2011.

Conference External Reviewer

Symposium on Theoretical Aspects of Computer Science (STACS) 2013.

Extraction et Gestion des Connaissances (EGC) 2010.

Neural Information Processing Systems (NIPS) 2009.

Knowledge Discovery and Data Mining (KDD) 2009.

European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) 2008.

Artificial Intelligence and Statistics (AISTATS) 2007.

Computer Vision and Pattern Recognition (CVPR) 2007.

Activities Promoting Inclusion and Diversity in Computer Science

Department Diversity Committee Member. Serving on a committee whose mission is to foster a diverse and inclusive community in the Department of Computer Science. Fall 2016–present.

Galipatia Research Speaker. Spoke to first-year undergraduates about machine learning research. Fall 2017.

Hypatia-Galileo Slush Rush Mentoring. Met with first-year undergraduate women and men in a living learning community to discuss their interest in computer science and STEM. Fall 2016.

Hypatia Research Speaker. Spoke to first-year undergraduate women about my experience in my career as a scientist, highlighting women in science who have had profound impacts on my career. Fall 2016.

STEP Luncheon Host. Hosted luncheons for incoming students in the Student Transition Engineering Program (STEP) of the Center for the Enhancement of Engineering Diversity (CEED). Summer 2015.

STEP Program Faculty Presenter. Gave a presentation on machine learning, its role in modern society, and research directions for students in STEP. Summer 2015.

Popular Press and other Media

Virginia Tech professor builds algorithm to detect traces of cyberbullying.
Izzy Rossi, News Editor, Collegiate Times. April 2017.

Detecting Cyber Bullying: But Can it Be Stopped?
Robbie Harris, WVTF Public Radio Interview. Radio Interview. March 2017.

Dispelling five common myths about cyberbullying
Ceci Leonard, Media Relations, Virginia Tech. February 2017.

Great Innovative Idea—Weakly Supervised Cyberbullying Detection in Social Media
Helen Wright, Computing Community Consortium (CCC) Blog. September 2016.