

School of Computer Science, Carnegie Mellon University
Gates Hillman Complex 8219, 5000 Forbes Avenue
Pittsburgh, PA, USA, 15123

☎ mobile: 412-973-1636

☎ phone: 412-268-3536

✉ email: xichen@cs.cmu.edu

WWW: <http://www.cs.cmu.edu/~xichen>

Xi Chen

Curriculum Vitae

EDUCATION

2008–present **Carnegie Mellon University, School of Computer Science.**

Ph.D. Candidate in Machine Learning Department

— Thesis Advisor: Prof. Jaime Carbonell

— Thesis Title: Learning with Sparsity: Structures, Optimization and Applications

— Committee: Jaime Carbonell, Tom Mitchell, Larry Wasserman, Robert Tibshirani (Stanford)

— GPA: 4.15/4.00

— Course Work: Machine Learning (A), Statistical Machine Learning (A), Multimedia Database and Data Mining (A+), Intermediate Statistics (A+), Regression Analysis (A+), Algorithms in the Real World (A+), Active Learning Seminar (A)

2007–2009 **Carnegie Mellon University, Tepper School of Business.**

Master of Science in Industrial Administration (Operations Research)

Algorithms, Combinatorics and Optimization Program

– Research Advisor: Prof. Manuel Blum

– GPA: 4.14/4.00

– Course Work: Linear Programming (A), Advanced Integer Programming (A), Convex Polytopes (A+), Advanced Combinatorics (A), Graph Theory (A+), Network Flows and Matchings (A+)

2002–2007 **Xi'an Jiaotong University (XJTU).**

BSc(Eng) in Computer Science

Special Class for the Gifted Young of China (Five year program intended for talented youths below 15 years old)

– GPA: Overall: 94.32/100 Major: 96.73/100

– Rank: No.1 out of 213 undergraduates in the Computer Science Dept.

RESEARCH EXPERIENCE

2008–present **Research Assistant for Prof. Jaime Carbonell, Carnegie Mellon University.**

- **Fast and Scalable Structured and/or Nonparametric Sparse Learning:** Smoothing proximal-gradient method for general structured sparse learning (UAI 11, AOAS); Structured Sparse CCA (AISTATS 12); Sparsity-preserving stochastic optimization (submitted to SIOPT); Greedy methods for sparse nonparametric learning (NIPS 09); Sparse regression tree (NIPS 10); Fast multi-task sparse learning (ICDM 09).

- **Learning Sparse Dynamic Networks:** Dynamic graph structure learning for spatial-temporal data (AAAI 10). Graph-valued regression (NIPS 10 Spotlight).
- **Applications of Sparse Learning:** Sparse matrix factorization for *anomaly detection* (ICDM 11); Adaptive Multi-task Sparse Learning for fMRI study (SDM 12); *Ranking* with millions of parameters (ICDM 10); Sparse latent semantic analysis for *text mining* (SDM 11); Time-evolving collaborative filtering for large-scale *recommending systems* (SDM 10).

2007–present **Research Assistant for Prof. Manuel Blum, Carnegie Mellon University.**

- **Usability and Security for Passwords:** Design new mechanisms to generate site-dependent and secure passwords which are easy to remember.
- **Inferring Integer Sequences:** Build the intelligent system to infer sequences in the Encyclopedia of Integer Sequences Database

PUBLICATIONS

Journal Papers

- **Xi Chen** and Han Liu. An Efficient Optimization Algorithm for Structured Sparse CCA, with Applications to eQTL Mapping. *Statistics in Biosciences*, 2012 (accepted)
- **Xi Chen**, Qihang Lin, Seyoung Kim, Jaime Carbonell and Eric P. Xing. Smoothing Proximal Gradient Method for General Structured Sparse Learning. *Annals of Applied Statistics (AOAS)*, 2012
- Qi Liu, Han Zhou, Lin Liu, **Xi Chen**, Ruixin Zhu and Zhiwei Cao. Multi-target QSAR Modelling in the Analysis and Design of HIV-HCV Co-Inhibitors : An In-silico Study. *BMC Bioinformatics*, 12:294, 2011

Refereed Conference Papers

- **Xi Chen**, Han Liu and Jaime Carbonell. Structured Sparse Canonical Correlation Analysis. In *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2012. Oral Presentation (26/400 \approx 6%)
- **Xi Chen**, Jingrui He, Rick Lawrence and Jaime Carbonell, Adaptive Multi-task Sparse Learning with an Application to fMRI Study. In *SIAM International Conference on Data Mining (SDM)*, 2012. Oral Presentation (53/363 \approx 14%)
- Xiong Liang, **Xi Chen** and Jeff Schneider. Direct Robust Matrix Factorization for Anomaly Detection. In *International Conference on Data Mining (ICDM)*, 2011
- **Xi Chen**, Qihang Lin, Seyoung Kim, Jaime Carbonell and Eric P. Xing. Smoothing Proximal Gradient Method for General Structured Sparse Learning. In *Uncertainty in Artificial Intelligence (UAI)*, 2011

- **Xi Chen**, Yanjun Qi, Bing Bai, Qihang Lin and Jaime Carbonell. Sparse Latent Semantic Analysis. In *SIAM International Conference on Data Mining (SDM)*, 2011
- Han Liu, **Xi Chen**, John Lafferty and Larry Wasserman. Graph-valued Regression. In *Advances in Neural Information Processing Systems (NIPS)*, 2010. Spotlight (73/1219 \approx 6%)
- Han Liu and **Xi Chen**. Multivariate Dyadic Regression Trees for Sparse Learning Problems. In *Advances in Neural Information Processing Systems (NIPS)*, 2010.
- **Xi Chen**, Bing Bai, Yanjun Qi, Qihang Lin and Jaime Carbonell. Learning Preferences using Millions of Parameters by Enforcing Sparsity. In *International Conference on Data Mining (ICDM)*, 2010.
- **Xi Chen**, Yan Liu, Han Liu and Jaime Carbonell. Learning Spatial-Temporal Varying Graphs with Applications to Climate Data Analysis. In *AAAI Conference on Artificial Intelligence*, 2010.
- Xiong Liang, **Xi Chen**, T.K. Huang, Jeff Schneider and Jaime Carbonell. Time-evolving collaborative filtering. In *SIAM International Conference on Data Mining (SDM)*, 2010
- Han Liu and **Xi Chen**. Nonparametric Greedy Algorithms for the Sparse Learning Problem. In *Advances in Neural Information Processing Systems (NIPS)*, 2009.
- **Xi Chen**, Weike Pan, James Kwok and Jaime Carbonell. Accelerated Gradient Method for Multi-Task Sparse Learning Problem. In *International Conference on Data Mining (ICDM)*, 2009
- **Xi Chen**. Canonical Forms under Similarity for Involutory Matrices over the Ring of Integers Modulo 2^m . *Mathematics Technology and Applied Science*, 48–50, 2006.

Submitted Papers & Preprints

- Qihang Lin, **Xi Chen**, Javier Peña. A Sparsity Preserving Stochastic Gradient Method for Composite Optimization, 2011. *Optimization Online*: http://www.optimization-online.org/DB_HTML/2011/04/3009.html

AWARDS & HONORS

- 09/2011 **IBM PhD Fellowship.**
- 07/2011 **Uncertainty in AI (UAI) 2011 Travel Award.**
- 01/2010 **American Statistical Association (ASA) Student Paper Competition Award.**
- 09/2008 **Graduate Student Fellowship.**
Machine Learning Department, Carnegie Mellon University

- 04/2007 **Chiang Chen Overseas Graduate Fellowship.**
Awarded 50,000\$ to ten best students in China for overseas study
- 11/2004 **The Tenth Place of the ACM International Collegiate Programming Contest (ACM/ICPC) — Asia, Beijing Site, Final Round.**
- 05/2004 **Semi-finalist in the Algorithm Invitational of the Microsoft Imagine Cup Competition.**
Sponsored by Microsoft, 200 students all over the world received this award
- 08/2005 **IBM China Excellent Student Scholarship.**
- 12/2004 **Special Excellent Student Scholarship.**
12/2005 Awarded to only 10 students out of 5,000 undergraduate students
- 12/2003 **First Class Scholarship.**
Awarded to the top one student in Special Class for the Gifted Young

INDUSTRIAL INTERNSHIP

- Summer 2011 **IBM Thomas J. Watson Research Center, NY.**
Help to build large-scale parallel system based on NIMBLE@IBM for online web-text classification
- Summer 2010 **NEC Lab America, Princeton.**
Develop efficient and scalable sparse learning algorithms for ranking and latent semantic analysis for text data

INVITED TALKS

- 08/2011 **Graph-Valued Regression, Rutgers Business School, The State University of New Jersey.**
- 08/2011 **Graph-Valued Regression, NEC Lab America.**
- 08/2010 **Proximal Gradient Descent for Structured Sparse Learning, Department of Computer Science, Princeton University.**
- 08/2010 **Multivariate Dyadic Regression Trees for Sparse Learning Problems, Joint Statistical Meeting 2010, Vancouver, Canada.**
- 07/2010 **Proximal Gradient Descent for Structured Sparse Learning, Department of Computer Science, University of British Columbia.**
- 07/2010 **Proximal Gradient Descent for Structured Sparse Learning, IBM Thomas J. Watson Research Center.**

TEACHING EXPERIENCE

- Spring 2011 **Teaching Assistant, Machine Learning (10701), Carnegie Mellon Univ.**
Instructor: Tom Mitchell

Spring 2010 **Teaching Assistant**, *Statistical Machine Learning (10702)*, Carnegie Mellon Univ.
Instructor: John Lafferty and Larry Wasserman

Professional Activities

Conference Reviewer.

International Conference on Artificial Intelligence and Statistics (AISTATS), 2012

Advances in Neural Information Processing Systems (NIPS), 2011

European Conference on Machine Learning (ECML), 2011

International Conference on Knowledge Discovery and Data Mining (SIGKDD), 2010

Journal Reviewer.

Journal of Machine Learning Research (JMLR), from 2010

Data Mining and Knowledge Discovery (DAMI), from 2011

Annals of Applied Statistics (AOAS), from 2011

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), from 2011

IEEE Transactions on Neural Networks and Learning Systems (TNNLS), from 2011

IEEE Signal Processing Letters (SPL), from 2012