Hsiang-Fu Yu 余相甫

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Personalization/Search
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EDUCATION

Ph.D. Dept. of Computer Science, The University of Texas at Austin   Aug. 2011 - Aug. 2016
GPA 4.00/4.00
Member of the Center of Big Data Analytics; Advisor: Professor Inderjit S. Dhillon

M.S. Dept. of Computer Science, National Taiwan University   Sep. 2008 - Jun. 2010
GPA 4.00/4.00; Ranked 1st out of 140
Member of the Machine Learning and Data Mining Group; Advisor: Professor Chih-Jen Lin

B.S. Dept. of Computer Science, National Taiwan University   Sep. 2004 - Jun. 2008
GPA 4.00/4.00 (CS Major), 3.99/4.00 (Total)
Ranked 2nd out of 118, with 8 Presidential Awards (top 5% each semester)
Member of the Machine Learning and Data Mining Group; Advisor: Professor Chih-Jen Lin

INDUSTRY EXPERIENCE

Applied Scientist in Amazon, Palo Alto   Oct. 2016 - present
- Worked on deep learning modeling for personalized recommendation
- Worked on recurrent behavior modeling and context-aware personalization
- Worked on query completion problems in search

Research Internship in Microsoft, Redmond   Jun. 2015 - Aug. 2015
- Worked on one-class collaborative filtering problems
- Investigated efficient algorithms and conducted empirical comparison among various approaches

Consultant in Appier, Taipei   Dec. 2014 - Dec. 2015
- Provided machine learning consulting service

Research Internship in WalmartLabs, San Bruno   May. 2013 - Aug. 2013
- Worked on large-scale demand-prediction problems
- Investigated matrix factorization techniques for time series data

Research Internship in Ebay ResearchLabs, San Jose   May. 2012 - Aug. 2012
- Investigated large-scale product title classification
- Conducted analysis on the feedback given by buyers.

Engineering Internship in Google Inc, Taipei/Mountain View   Jun. 2008 - Sep. 2008
- Worked on universal search project.
- Investigated machine learning approaches for boosting CTR of universal search results.

RESEARCH INTERESTS

I am interested in large-scale machine learning, data-mining, and related topics:
- Parallel algorithms for matrix completion/factorization

- Optimization techniques for multi-label Learning

- Scalable Inference methods for topic modeling

SELECTED AWARDS AND HONORS

Intel PhD Fellowship   2014 – 2015

Best Paper Award at IEEE ICDM 2012   2012

Best Research Paper Award at ACM KDD 2010   2010

First Prize at KDD Cup 2010   2010

Third Prize in the "Slow" Track of KDD Cup 2009   2009

Winner in SVM Track of Pascal Large Scale Learning Challenge in ICML 2008 Workshop   2008

REFEREED JOURNAL PUBLICATIONS

[1] **H.-F. Yu**, C.-J. Hsieh, H. Yun, S.V.N. Vishwanathan, and I. S. Dhillon. Nomadic Computing for Big Data Analytics. *IEEE Computer*, vol. 49:4:52-60, 2016.

[2] H. Yun, **H.-F. Yu**, C.-J. Hsieh, S.V.N. Vishwanathan, and I. S. Dhillon. NOMAD: Non-locking, stOchastic Multi-machine algorithm for Asynchronous and Decentralized matrix completion. *Proceedings of the VLDB Endowment*, 7:11:975-986, 2014.

[3] **H.-F. Yu**, C.-J. Hsieh, S. Si, and I. S. Dhillon. Parallel Matrix Factorization for Recommender Systems. *Knowledge and Information Systems (KAIS)*, 2013.

[4] **H.-F. Yu**, C.-J. Hsieh, K.-W. Chang, and C.-J. Lin, Large Scale Linear Classification When Data Cannot Fit In Memory. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 5:23:1-23, 2012.

[5] **H.-F. Yu**, F.-L. Huang, and C.-J. Lin. Dual coordinate descent methods for logistic regression and maximum entropy models. *Machine Learning*, 85:41-75, 2011.

REFEREED CONFERENCE PUBLICATIONS

[6] C. Jiang, **H.-F. Yu**, C.-J. Hsieh, K.-W. Chang. Learning Word Embeddings for Low-resource Languages by PU Learning. To be appeared in *North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*, 2018.

[7] **H.-F. Yu**, C.-J. Hsieh, Q. Lei, I. S. Dhillon. A Greedy Approach for Budgeted Maximum Inner Product Search. In *Advances in Neural Information Processing Systems (NIPS)*, 2017.

[8] **H.-F. Yu**, M. Bilenko, C.-J. Lin. Selection of negative samples for one-class matrix factorization. In *SIAM International Conference on Data Mining (SDM)*, 2017.

[9] **H.-F. Yu**, H.-Y Huang, I. S. Dhillon, and C.-J. Lin. A Unified Algorithm for One-class Structured Matrix Factorization with Side Information. In *AAAI Conference on Artificial Intelligence (AAAI)*, 2017

[10] **H.-F. Yu**, N. Rao, I. S. Dhillon. Temporal Regularized Matrix Factoriztion for High-dimensional Time Series Prediction. In *Advances in Neural Information Processing Systems (NIPS)*, 2016.

[11] Y. You, X. Lian, J. Liu, **H.-F. Yu**, I. S. Dhillon, J. Demmel, and C.-J. Hsieh. Asynchronous Parallel Greedy Coordinate Descent. In *Advances in Neural Information Processing Systems (NIPS)*, 2016.

[12] N. Rao, **H.-F. Yu**, P. Ravikumar, I. S. Dhillon. Collaborative Filtering with Graph Information: Consistency and Scalable Methods. In *Advances in Neural Information Processing Systems (NIPS)*, 2015.

[13] C.-J. Hsieh, **H.-F. Yu**, I. S. Dhillon. PASSCoDe:Parallel ASynchronous Stochastic dual Co-ordinate Descent. In *International Conference Machine Learning (ICML)*, 2015.

[14] **H.-F. Yu**, C.-J. Hsieh, H. Yun, S.V.N. Vishwanathan, and I. S. Dhillon. A Scalable Asynchronous Distributed Algorithm for Topic Modeling. In *ACM WWW International conference on World Wide Web*, 2015.

[15] **H.-F. Yu**, P. Jain, P. Kar, and I. S. Dhillon. Large-scale Multi-label Learning with Missing Labels. In *International Conference Machine Learning (ICML)*, 2014

[16] **H.-F. Yu**, C.-J. Hsieh, S. Si, and I. S. Dhillon. Scalable Coordinate Descent Approaches to Parallel Matrix Factorization for Recommender Systems. In *IEEE International Conference on Data Mining(ICDM)*, 2012. **Best Paper Award**.

[17] **H.-F. Yu**, C.-J. Hsieh, K.-W. Chang, and C.-J. Lin. Large Scale Linear Classification When Data Cannot Fit In Memory. In *International Joint Conferences on Artificial Intelligence (IJCAI)*, 2011. **The Best Paper Track**.

[18] **H.-F. Yu**, C.-J. Hsieh, K.-W. Chang, and C.-J. Lin. Large Scale Linear Classification When Data Cannot Fit In Memory. In *ACM SIGKDD International Conference of Knowledge Discovery and Data Mining (KDD)*, 2010. **Best Research Paper Award**.

OTHER PUBLICATIONS

[19] **H.-F. Yu**, C.-H. Ho, Y.-C. Juan, C.-J. Lin. LibShortText: a library for short-text classification and analysis. Technical report, 2013.

[20] **H.-F. Yu**, C.-H. Ho, P. Arunachalam, M. Somaiya, and C.-J. Lin. Product title classification versus text classification. Technical report, 2012.

[21] **H.-F. Yu**, H.-Y. Lo, H.-P. Hsieh, J.-K. Lou, T McKenzie, J.-W. Chou, P.-H. Chung, C.-H. Ho, C.-F. Chang, Y.-H. Wei, J.-Y. Weng, E.-S. Yan, C.-W. Chang, T.-T. Kuo, Y.-C. Lo, P.-T. Chang, C. Po, C.-Y. Wang, Y.-H. Huang, CW Hung, YX Ruan, Y.-S. Lin, S.-D. Lin, H.-T. Lin and C.-J. Lin. Feature engineering and classifier ensemble for KDD Cup 2010. (**First Prizes** of Both All Teams and All Student Teams).

[22] H.-Y. Lo, K.-W. Chang, S.-T. Chen, T.-H. Chiang, C.-S. Ferng, C.-J. Hsieh, Y.-K. Ko, T.-T. Kuo, H.-C. Lai, K.-Y. Lin, C.-H. Wang, **H.-F. Yu**, C.-J. Lin, H.-T. Lin and S.-d. Lin. An Ensemble of Three Classifiers for KDD Cup 2009: Expanded Linear Model, Heterogeneous Boosting, and Selective Naive Bayes. In G. Dror et al., eds., *Proceedings of KDD-Cup 2009 competition, vol. 7 of JMLR Workshop and Conference Proceedings*, 57-64, 2009. (**Third Place** of the Slow Track).

[23] **H.-F. Yu**, C.-J. Hsieh, K.-W. Chang, and C.-J. Lin. Pascal challenge: Linear support vector machines. In *Pascal Large Scale Learning Challenge in ICML Workshop,* 2008.

SOFTWARE DESIGN

LIBPMF - A Library for Large-scale Parallel Matrix Factorization
http://www.cs.utexas.edu/~rofuyu/libpmf

- Developed fast and scalable method CCD++ for matrix factorization
- The library follows the similar interface LIBSVM/LIBLINEAR, which is simple to use.
- Developed interfaces to support various languages (Python, Matlab, R).

LibShortText - A Library for Short-text Classification and Analysis
http://www.csie.ntu.edu.tw/~cjlin/libshorttext/

- Developed an easy-to-use library which is more efficient than general text-mining packages.
- Studied carefully to select appropriate default options which works well in most situations without tedious tuning.
- Designed an iterative for error analysis.

LIBLINEAR - A Library for Large Linear Classification

http://www.csie.ntu.edu.tw/~cjlin/liblinear

- Developed a new solver for LIBLINEAR.
- Developing/maintaining the library and answering questions from users.
- The library has been used in some major Internet companies to classify their web data

LIBSVM - A Library for Support Vector Machine

http://www.csie.ntu.edu.tw/~cjlin/libsvm

- Developed a new python interface for LIBSVM
- Developing/maintaining the library and answering questions from users
- The library has been downloaded more than 150,000 times since Apr. 2000

OTHER AWARDS AND HONORS

MCD Fellowship	2011 – 2013
Master's Thesis Award, Taiwanese Association for Artificial Intelligence	2010
The Scholarship of Pan Wen Yuan Foundation	2009
Honorary Member of the Phi Tau Phi Scholastic Honor Society	2008

officially recommended by NTU, from top 2% of 118 graduating students in computer science department

The Scholarship of CyberLink	2007

ACM ICPC Asia Regional programming Contest

Eighth Place, Amritapuri	2007
Thirteen Place, Taipei	2007
Bronze Medal, Taipei/Xian	2006
Presidential Award, National Taiwan University	Fall/Spring 2004 - 2008

given to the top 5% undergraduate students each semester

SKILLS

- Programming: C/C++, Python, MATLAB, OpenMP, MPI