

Hsin-Yuan Robert Huang

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EDUCATION

Dept. of Computer Science, National Taiwan University Sep. 2014 - present

Dept. of Physics, National Taiwan University Sep. 2014 - present

Double majored in computer science and physics.

Current GPA: 4.30/4.30, Rank: 1/120.

Member of the Machine Learning and Data Mining Group; Advisor: Professor Chih-Jen Lin

Jian-Guo High School Sep. 2011 - Jun. 2014

Special permission to attend courses in National Taiwan University during senior year:

Randomized Algorithm (graduate course), Data Structure and Algorithm, ODE, Linear Algebra, Calculus, General Physics. (GPA: 4.30/4.30)

SELECTED AWARDS AND HONORS

Awards for Competition in Algorithm and Informatics:

25th International Olympiad in Informatics, Bronze Medal Jul. 2013

2013 Asia-Pacific Informatics Olympiad, Silver Medal May 2013

National High School Informatics Competition, First Place Dec. 2012

Taipei High School Informatics Competition, First Place Oct. 2012

Taipei High School Informatics Competition, Third Place Oct. 2011

Awards for Academia Excellence:

First Place Scholarship, Ministry of Education (awarded to Olympiad medalists ranking top 1)

2015, 2016, 2017

Presidential Award, National Taiwan University (awarded to students ranking top 5%)

Fall / Spring 2015, 2016, 2017

RESEARCH EXPERIENCE

Research Intern, Microsoft AI&Research, Redmond, USA, Mentor: Chenguang Zhu Jun. 2017 - Sep. 2017

Research Assistant, Dept. of Computer Science, PI: Chih-Jen Lin Sep. 2014 - present

Research Assistant, Dept. of Life Science, PI: Hsueh-Fen Juan May 2013 - Aug. 2014

PUBLICATIONS

- [1] H.-F. Yu, **H.-Y. Huang**, I. S. Dhillon, C.-J. Lin. A Unified Algorithm for One-class Structured Matrix Factorization with Side Information. In *31st AAAI Conference on Artificial Intelligence (AAAI-17)*, 2017. (acceptance rate: 24.6%)
- [2] **H.-Y. Huang**, C.-J. Lin. Linear and Kernel Classification: When to Use Which? In *SIAM International Conference on Data Mining (SDM16)*, 2016. (acceptance rate: 25.8%)
- [3] C.-Y. Chen, A. Ho, **H.-Y. Huang**, H.-F. Juan and H.-C. Huang. Dissecting the human protein-protein interaction network via phylogenetic decomposition. In *Scientific Reports*, 4, 7153 (2014).

SKILLS

- Languages: Mandarin Chinese, English, Japanese
- Programming: C/C++, Python, MATLAB, Mathematica

SELECTED PROJECTS

For more detailed descriptions, please refer to my personal website: <https://momohuang.github.io>.

Implicit-Feedback Recommender System with Side Information May 2016 – now

Research Assistant to Professor Chih-Jen Lin, National Taiwan University

- The first to developed efficient method to solve implicit-feedback recommender system with any convex loss and with a wide range of side informations.
- Showed that using classification loss can yield significant improvement in prediction.

Automatic Machine Learning: Linear and Kernel Classification Jan. 2015 – now

Research Assistant to Professor Chih-Jen Lin, National Taiwan University

- Developed an automatic scheme to decide which method is more suitable for a new problem.
- Empirically showed the effectiveness and efficiency of the proposed method.
- Currently working on the theoretical aspects for our proposed method.

Image Stitching Mar. 2016 – Jun. 2016

Course project when taking Digital Image Processing.

- Image feature detection and matching using MSOP, KD-tree and RANSAC algorithm.
- Implemented greedy graph cut and Poisson blending for seamless panorama.
- Won the first place when taking the course with ~ 130 competitors.

Automatic Sentence Redundancy Correction Mar. 2015 – Jun. 2015

Course project when taking Natural Language Processing.

- Combine rule-based (statistical method) and language model using logistic regression to detect whether the sentence has redundancy or not.
- Using conditional random field combined with above informations to label the redundant words.
- Improving our method by enhancing the language model using Google N-gram data.

ORAL AND POSTER PRESENTATIONS

- [1] "A Unified Algorithm for One-class Structured Matrix Factorization with Side Information", 31st AAAI Conference on Artificial Intelligence (AAAI-17), Feb. 4-9, 2017.
- [2] "Linear and Kernel Classification: When to Use Which?", SIAM International Conference on Data Mining (SDM16), May 5-8, 2016.
- [3] "Linear and Kernel Classifier: When to Use Which?", Spotlight presentation (acceptance rate: 11%), Machine Learning Summer School (MLSS'15), Kyoto University, August 23-September 4, 2015.
- [4] "Brief Introduction to Automatic Machine Learning", Science Exploration Forum, National Taiwan University, August 11, 2015.
- [5] "Dissecting Human Protein-Protein Interaction Network via Phylogenetic Decomposition." 14th International Conference on Systems Biology (ICSB2013), August 30-September 3, 2013.

SYNERGISTIC ACTIVITY

Journal review: Data Mining and Knowledge Discovery (2016).

Conference review: Asia Pacific Bioinformatics Conference (2017).

Conference volunteer: AAAI Conference on Artificial Intelligence (2017).

OTHER AWARDS AND HONORS

NTU CS Department Poster Competition, First Place

Jun. 2017

Appier Scholarship

Apr. 2016, Feb. 2017

<i>AAAI Conference on Artificial Intelligence 2017 Scholarship</i>	<i>Feb. 2017</i>
<i>SIAM International Conference on Data Mining 2016 Travel Award</i>	<i>Apr. 2016</i>
<i>Machine Learning Summer School 2015 Travel Award</i>	<i>Oct. 2015</i>
<i>Wang Da Gang Natural Science Scholarship</i>	<i>May 2013</i>
<i>Taiwan International Science Fair, Third Prize</i>	<i>Nov. 2012</i>
<i>Science Research Grant for High School Student, First Prize</i>	<i>Nov. 2012</i>