Xiangchen **Song**

RESEARCH ASSISTANT · DATA MINING RESEARCHER

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Research Interest

Data Mining with minimal human effort for automated knowledge construction.

Education

UIUC (University of Illinois at Urbana-Champaign)   *Champaign, IL, USA*

B.S. IN MATHEMATICS AND COMPUTER SCIENCE   *Aug. 2018 - Dec. 2020*

- GPA: 4.0/4.0

(Transferred out) CityU HK (City University of Hong Kong)   *Kowloon Tong, Hong Kong*

B.ENG. IN ELECTRONIC AND COMMUNICATION   *Aug. 2016 - Aug. 2018*

- GPA: 4.12/4.3, Major GPA: 4.3/4.3
- Class Rank: 1/126

Selected Course Work

- **Machine Learning & Data Mining**: Data Mining Principles*, Advanced Topics in Information Retrieval*, Network Mining*, Introduction to Data Mining, Machine Learning
- **CS Core**: Data Structure, Computer Architecture, System Programming, Algorithms and Models of Computation, Numerical Methods, Algorithm*, Numerical Analysis
- **MATH**: Calculus & Linear Algebra, Probability, Non-linear Programming, Differential Equations, Real Analysis, Introduction to Combinatorics

(* denotes graduate-level courses)

Honors & Awards

2020	**John R. Pasta Outstanding Undergraduate Award**, Department of Computer Science, UIUC	*Champaign, IL*
2018	**Compass Scholarship**, City University of Hong Kong	*Kowloon Tong, HK*
2016	**Entrance Scholarships for Non-Local Students**, City University of Hong Kong	*Kowloon Tong, HK*
2018-2020	**Dean's List**, College of Liberal Arts & Sciences, UIUC	*Champaign, IL*
2016-2018	**Dean's List**, College of Engineering, CityU HK	*Kowloon Tong, HK*

Publications

1. **Xiangchen Song**, Jiaming Shen, Jiawei Han. "TaxoSort: Emerging Concept Sort in Taxonomy Expansion". (In Submission)

2. Xuan Wang, **Xiangchen Song**, Bangzheng Li, Kang Zhou, Qi Li, Jiawei Han. "Fine-Grained Named Entity Recognized Dataset of COVID-19 Literature". (In Submission)

3. Xuan Wang, **Xiangchen Song**, Bangzheng Li, Yingjun Guan and Jiawei Han. "Comprehensive Named Entity Recognition on CORD-19 with Distant or Weak Supervision". In Proceedings Of **Intelligent Systems for Molecular Biology (ISMB 2020 Abstracts) (Oral and Poster)**

4. **Xiangchen Song**, Jieyu Zhang, Jiawei Han, Chao Zhang. "TaxoExpan+: Enhanced Taxonomy Expansion in New Concepts". (In preparation)

5. **Xiangchen Song**, Sha Li, Bangzheng Li, Jieyu Zhang, Jiawei Han, Hanghang Tong. "Expert Finding via Subgraph Similarity Search on HINs". (In preparation)

6. Sha Li*, **Xiangchen Song***, Jieyu Zhang, Jiawei Han, Heng Ji. "Unsupervised Role Discovery". (In preparation)

Research & Work Experience

Taxonomy Expansion and Modification
Atlanta, GA

Georgia Institute of Technology
May. 2020 - Aug. 2020

- Further extend the taxonomy expansion task to automatically expand with emerging concept while adjusting the existing structure.
- Advisor: Prof. Chao Zhang

Named Entity Recognition study on COVID-19 Literature
Champaign, IL

University of Illinois at Urbana-Champaign
Mar. 2020 - Aug. 2020

- Develop seed guided distantly supervised Named Entity Recognition (NER).
- Ensemble multi-source NER result for fine-grained COVID-19 NER dataset
- with Xuan Wang, Bangzheng Li, Advisor: Prof. Jiawei Han and Prof. Qi Li

Taxonomy Expansion with Emerging Concept Set
Champaign, IL

University of Illinois at Urbana-Champaign
Feb. 2020 - Jun. 2020

- Further develop the task and allow taxonomy structure generated within emerging concepts.
- Use self-supervision data to learn a model to generate a pseudo-order for taxonomy expansion.
- Compatible with state-of-the-art Taxonomy Expansion Models.
- with Jiaming Shen, Advisor: Prof. Jiawei Han

Expert Finding via Subgraph Similarity Search on HINs
Champaign, IL

University of Illinois at Urbana-Champaign
Dec. 2019 - May. 2019

- Introduce a novel embedding-based graph similarity search ranking algorithm for expert finding.
- Learning node embedding utilizing random walk based embedding technique.
- Random projection to generate graph-embedding.
- Advisor: Prof. Jiawei Han and Prof. Hanghang Tong

Unsupervised Role discovery
Champaign, IL

University of Illinois at Urbana-Champaign
Aug. 2019 - Mar. 2020

- End-to-end model for both schema induction and slot.
- Automatically discover important event specific roles for unlabeled corpus.
- with Sha Li, Advisor: Prof. Jiawei Han and Prof. Heng Ji

NSCTA Text-Cube Demo Project
Champaign, IL

University of Illinois at Urbana-Champaign
Mar. 2019 - Sep. 2019

- Cleaning data and response for the algorithm part of the whole demo.
- Implement page-ranking-like algorithm to rank items.
- Utilize CaseOlap Algorithm for event cube construction.
- Advisor: Prof. Jiawei Han

Differential Private Graph Generation
Champaign, IL

University of Illinois at Urbana-Champaign
Jan. 2019 - May. 2019

- Generating Graphs with differential privacy constraints.
- Collecting data and baseline comparison.
- with: Carl Yang and Haonan Wang, Advisor: Prof. Jiawei Han

Random Access Analysis
Kowloon Tong, Hong Kong

City University of Hong Kong
May. 2018 - Aug. 2018

- Model and evaluate network performance of mixture of Aloha & CSMA System.
- Provide optimization method for given scenarios (Separated or overall performance).
- Advisor: Prof. Lin Dai

Spherical Multidimensional Scaling
Kowloon Tong, Hong Kong

City University of Hong Kong
Nov. 2017 - Aug. 2018

- Using Spherical MDS to reconstruct the relationship of the original data.
- Advisor: Prof. Shuaicheng Li

Teaching

University of Illinois at Urbana-Champaign
Champaign, IL

CS374 Algorithms and Models of Computation, CS473 Algorithms, Course Assistant
Aug. 2019 - May. 2020

Holding office hours, grading homework and answering questions on Piazza.

City University of Hong Kong
Kowloon Tong, Hong Kong

Peer Tutoring Scheme, Tutor
Sep. 2017 - May. 2018

Hold weekly tutorial classes for freshman on Math & ECE classes.

Skills

Natural Languages	English, Chinese (Mandarin & Cantonese)
Operating Systems	GNU/Linux, Mac OSX, Windows
Programming Languages	Python, C/C++, Shell, LaTeX, Git, Matlab, Haskell, Java

Extracurricular Activity

Calligraphantasy - Chinese Calligraphy Culture Development Society in Hong Kong   *Hong Kong*

PRESIDENT   *2017 - 2018*

Promote cultural exchange in Guangdong-Hong Kong-Macao Greater Bay Area together with Taiwan and S. Korea

IMUNC Beijing - Mock United Nation in Beijing 2017   *Beijing, China*

STAFF MEMBER   *Feb. 2017 - July. 2017*

Mock United Nation on The Belt and Road Initiative

City-Youth Empowerment Project(CYEP)   *Hong Kong*

MEMBER   *2017 - 2018*

Serve the underprivileged or special needs groups in the community.