LINGYANG CHU

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WORK

Principal Researcher (Leader of the AI Theory Research Team)   *November 2018 - Present*
Huawei Technologies Canada, Co., Ltd., Burnaby, Canada
Research: Interpretability, Security and Compression of Deep Neural Networks, Large Scale Dense Subgraph Mining and Privacy Preserving Federated Learning

EDUCATION

Postdoctoral Fellow in Computing Science   *September 2015 - November 2018*
Simon Fraser University, Burnaby, Canada
Supervised by Prof. Jian Pei
Research: Large Scale Dense Subgraph Mining and Interpretability of Deep Neural Networks

Ph.D. in Computing Science   *September 2009 - July 2015*
University of Chinese Academy of Sciences, Beijing, China
Supervised by Prof. Qingming Huang
Thesis Topic: Large Scale Dense Subgraph Mining

B.Sc. in Telecommunication Engineering   *September 2005 - July 2009*
Huazhong University of Science and Technology, Wuhan, China
Graduated with Honors. (GPA: 89.5/100, ranked 3rd out of 266)

SELECTED PUBLICATIONS

Papers in Refereed Journals

1. Mingtao Lei, **Lingyang Chu**, Zhefeng Wang, Jian Pei, Caifeng He, Xi Zhang and Binxing Fang. "Mining Top-k Sequential Patterns in Transaction Database Graphs". *World Wide Web (WWW)*, 1-28, 2019.

2. **Lingyang Chu***, Zijin Zhao*, Dacheng Tao and Jian Pei. "Classification with Label Noise: A Markov Chain Sampling Framework". *Data Mining and Knowledge Discovery (DMKD)*, 33(5): 1468-1504, 2019. (* Equal contribution)

3. Zhefeng Wang, Yu Yang, Jian Pei, **Lingyang Chu** and Enhong Chen. "Activity Maximization by Effective Information Diffusion in Social Networks". *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 29(11): 2374-2387, 2017.

4. **Lingyang Chu**, Yanyan Zhang, Guorong Li, Shuhui Wang, Weigang Zhang and Qingming Huang. "Effective Multi-modality Fusion Framework for Cross-media Topic Detection". *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 26(3): 556-569, 2014.

5. **Lingyang Chu**, Shuqiang Jiang, Shuhui Wang, Yanyan Zhang and Qingming Huang. "Robust Spatial Consistency Graph Model for Partial Duplicate Image Retrieval". *IEEE Transactions on Multimedia (TMM)*, 15(8): 1982-1996, 2013.

Papers in Refereed Conferences

1. **Lingyang Chu**, Yanyan Zhang, Yu Yang, Lanjun Wang and Jian Pei. "Online Density Bursting Subgraph Detection from Temporal Graphs". To appear in *Proceedings of the 46th International Conference on Very Large Data Bases (VLDB)*, 2020.

2. Zicun Cong, **Lingyang Chu**, Lanjun Wang, Xia Hu and Jian Pei. "Exact and Consistent Interpretation of Piecewise Linear Models Hidden behind APIs: A Closed Form Solution". To appear in *Proceedings of the 36th IEEE International Conference on Data Engineering (ICDE)*, 2020.

3. **Lingyang Chu**, Zhefeng Wang, Jian Pei, Yanyan Zhang, Yu Yang and Enhong Chen. "Finding Theme Communities from Database Networks". In *Proceedings of the 45th International Conference on Very Large Data Bases (VLDB)*, 12(10): 1071-1084, 2019.

4. **Lingyang Chu**, Xia Hu, Juhua Hu, Lanjun Wang and Jian Pei. "Exact and Consistent Interpretation for Piecewise Linear Neural Networks: A Closed Form Solution". In *Proceedings of the 24th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 1244-1253, 2018.

5. Yu Yang, **Lingyang Chu**, Yanyan Zhang, Zhefeng Wang, Jian Pei and Enhong Chen. "Mining Density Contrast Subgraphs". In *Proceedings of the 34th IEEE International Conference on Data Engineering (ICDE)*, 221-232, 2018.

6. **Lingyang Chu**, Zhefeng Wang, Jian Pei, Jiannan Wang, Zijin Zhao and Enhong Chen. "Finding Gangs in War from Signed Networks". In *Proceedings of the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 1505-1514, 2016.

7. **Lingyang Chu**, Shuhui Wang, Siyuan Liu, Qingming Huang and Jian Pei. "ALID: Scalable Dominant Cluster Detection". In *Proceedings of the 41st International Conference on Very Large Data Bases (VLDB)*, 8(8): 826-837, 2015.

8. Yanyan Zhang, Guorong Li, **Lingyang Chu**, Shuhui Wang, Weigang Zhang and Qingming Huang. "Cross Media Topic Detection: A Multi-modality Fusion Framework". In *Proceedings of the International Conference on Multimedia & Expo (ICME)*, 1-6, 2013. **(Best Paper Candidate)**

9. Shuang Wang, Yunfeng Xue, **Lingyang Chu**, Yuhao Jiang and Shuqiang Jiang. "ObjectSense: A Scalable Multi-objects Recognition System based on Partial Duplicate Image Retrieval". In *Proceedings of the ACM International Conference on Multimedia Retrieval (ICMR)*, 317-318, 2013. **(Best Demo Award)**

10. Tianlong Chen, Shuqiang Jiang, **Lingyang Chu** and Qingming Huang. "Detection and Location of Near-duplicate Video Sub-clips by Finding Dense Subgraphs". In *Proceedings of the 21st ACM International Conference on Multimedia (MM)*, 1173-1176, 2011.

Papers Submitted or In Progress

1. Mingtao Lei, Xi Zhang, **Lingyang Chu**, Zhefeng Wang, Philip S. Yu and Binxing Fang. "Finding Route Hotspots in Large Labeled Networks". In Revision, submitted to *IEEE Transactions on Knowledge and Data Engineering (TKDE)*.

2. Yutao Huang, **Lingyang Chu**, Yong Zhang, Lanjun Wang, Jiangchuan Liu and Jian Pei. "SVFL: A Secured Federated Learning Framework". (In progress)

SUPERVISION

Students (Co-supervised with Prof. Jian Pei at Simon Fraser University)

- Zicun Cong (Ph.D. Candidate at Simon Fraser University)

- Xia Hu (Ph.D. Candidate at Simon Fraser University)

- Zhefeng Wang (Ph.D. | Now at Huawei, China)

- Mingtao Lei (Ph.D. | Now at Beijing University of Posts and Telecommunications, China)

- Zijin Zhao (M.Sc. | Now at Amazon, Canada)

- Yanyan Zhang (M.Sc. | Now at Fortinet, Canada)
- Yajie Zhou (M.Sc.)

Interns (Supervised at Huawei Technologies Canada, Co., Ltd.)

- Prithu Banerjee (Ph.D. Candidate at the University of British Columbia)
- Yutao Huang (Ph.D. Candidate at Simon Fraser University)
- Yongwei Wang (Ph.D. Candidate at the University of British Columbia)

TEACHING

Teaching Assistant, University of Chinese Academy of Sciences

- Introduction to Pattern Recognition and Machine Learning, Fall, 2010.
- Basics of Multimedia Processing, Spring, 2011.

ACADEMIC SERVICES

PC Member	KDD(2018, 2019), TheWebConf 2020 and ACM Multimedia 2019
	CIKM 2019, WSDM(2018, 2019, 2020) and DASFAA (2018, 2019, 2020)
Journal Reviewer	TKDE, TMM, KAIS, DMKD, DAMI and TKDD
External Reviewer	VLDB 2016, WWW 2016, ICDE 2016, SIGIR 2017 and KDD 2017

TECHNICAL STRENGTHS

Research	Data Mining, Machine Learning, Computer Vision and Multimedia
Computer Languages	C/C++, Java, Matlab and Python
Languages	Mandarin and English

SELECTED HONORS AND AWARDS

National Scholarship of China (**Top 3%**)	2013
Pacemaker to Merit Student in the University of Chinese Academy of Sciences (**Top 1%**)	2013
Merit Student in the University of Chinese Academy of Sciences (Top 13%)	2009 – 2012
Innovation Award Second Place in VLPR held by Microsoft Research Asia (Top 13%)	2011
Excellent Student in Huazhong University of Science and Technology. (**Top 1%**)	2006
Merit Student in Huazhong University of Science and Technology. (Top 10%)	2005 – 2009

REFERENCES

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