

# LINGYANG CHU

Permanent Resident of Canada

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## WORK

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**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

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**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

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### 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

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**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

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**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

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

## TECHNICAL STRENGTHS

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

## SELECTED HONORS AND AWARDS

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National Scholarship of China ( <b>Top 3%</b> )	2013
Pacemaker to Merit Student in the University of Chinese Academy of Sciences ( <b>Top 1%</b> )	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. ( <b>Top 1%</b> )	2006
Merit Student in Huazhong University of Science and Technology. (Top 10%)	2005 – 2009

## REFERENCES

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**Dr. Jian Pei**

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Simon Fraser University  
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☎ +1 (778)-782-6851  
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