School of Computing Science, Simon Fraser University
+1 778-960-6345
lca117@sfu.ca
Male, Birth: 1988-03
Permanent resident of Canada

Lingyang Chu

Education and Work

2018.11 – Now **Huawei Technologies Canada Co., Ltd.**.
Consultant in the AI-IoT team of the Vancouver research centre.

2015.09 – Now **IDEAL Lab, Simon Fraser University (SFU)**.
Postdoctoral Fellow supervised by Prof. Jian Pei.

2009.09 – 2015.07 **Institute of Computing Technology, Chinese Academy of Sciences (CAS)**.
Ph.D candidate, major in multimedia, computer vision and graph mining.

2005.09 – 2009.07 **Huazhong University of Science and Technology (HUST)**.
Bachelor of Engineering, major in Telecommunication Engineering. Rank: 3/266.

Strength and Interest

Strength
- Solid theoretical background in data mining and machine learning.
- Broad knowledge of typical tasks of multimedia and computer vision.
- Rich practical experience in image retrieval and multi-modal information processing.
- Fruitful experience in leading research projects in the IDEAL lab at SFU.
- Progaming skills: C/C++, Java, Python, Spark, Linux and Matlab.

Current Interest
- Interpretation and compression of convolutional neural networks with quality guarantee.
- Interpretations on APIs of piece-wise linear neural networks with quality guarantee.

Selected Research Projects

2017.09 – Now **Exact and consistent interpretation on piecewise linear neural networks**.
This line of works give closed form interpretations on piecewise linear neural networks with solid theoretical guarantee.
- The first work was published on KDD 2018.
- A follow-up work is under review of a top-tier conference.

2017.09 – 2018.08 **Classification with label noise: A Markov Chain sampling framework**.
This framework learns effective classifiers from training data whose labels are highly unreliable.
- Published on DMKD 2019.

2015.09 – 2016.02 **Efficient adversarial community mining in large scale social networks**.
This work efficiently detects adversarial communities from large scale opinion social networks.
- In cooperation with Huawei Noah's Ark Lab.
- Published on KDD 2016.

2014.05 – 2015.06 **Anti-noise parallel clustering on big noisy data**.
This is a paralleled clustering method with low time and space complexities. It processes a graph with 50 million vertices in 2 hours on a Spark cluster of 4 PCs.
- Published on VLDB 2015.

2012.07 – 2014.04 **Cross-media web event detection framework**.
This is a flexible multi-modality fusion framework, carefully designed to fully utilize the heterogenous cross-media data, such as web video, image and text, for effective web event detection.
- Published on ICME 2013 as **best paper candidate**.
- Journal version was published on IEEE Transactions on CSVT 2014.
- Obtained a national patent in China.

2010.09 – 2012.08 **Large scale partial duplicate image retrieval**.

This is an accurate image retrieval system, built on top of a coarse-to-fine "*spatial consistency graph model*" that robustly verifies the spatial consistency of local features.

- Published on IEEE Transactions on Multimedia 2013.
- Our image search engine won the **excellence award** on the 5-th China Popularized Science Products Exposition.

2012.08 – 2012.10 **Realtime multi-object recognition system**.

This is an object recognition system, extended from the "*spatial consistency graph model*".

- Published on ICMR 2013 and won the **best demo award**.
- Our object recognition system won the **bronze award** on the 5-th China Popularized Science Products Exposition.

Published Papers

Transactions and Journals

Lingyang Chu*, Z. Zhao*, D. Tao, J. Pei, "Classification with label noise: A Markov Chain sampling framework[J]", *Data Mining and Knowledge Discovery*, 2019. (* Equal contribution)

Z. Wang, Y. Yang, J. Pei, **Lingyang Chu**. "Activity Maximization by Effective Information Diffusion in Social Networks[J]", *Knowledge and Data Engineering, IEEE Transactions on*, 2017, 29(11): 2374-2387.

Lingyang Chu, Y. Zhang, G. Li, S. Wang, W. Zhang and Q. Huang, "Effective multi-modality fusion framework for cross-media topic detection", *Circuits and Systems for Video Technology, IEEE Transactions on*, Aug. 2014.

Lingyang Chu, S. Jiang, S. Wang, Y. Zhang and Q. Huang, "Robust spatial consistency graph model for partial duplicate image retrieval", *Multimedia, IEEE Transactions on*, vol.15, pp.1982-1996, Dec. 2013.

Selected Conferences

Lingyang Chu, Z. Wang, J. Pei, Y. Zhang, Y. Yang, E. Chen *"Finding Theme Communities from Database Networks"*, *Proceedings of the VLDB Endowment*, 2019 (Under revision).

Lingyang Chu, X. Hu, J. Hu, L. Wang, J. Pei, *"Exact and Consistent Interpretation for Piecewise Linear Neural Networks: A Closed Form Solution"*, *ACM SIGKDD Conferences on Knowledge Discovery and Data Mining*, August, 2018.

Y. Yang, **Lingyang Chu**, Y. Zhang, Z. Wang, J. Pei, E. Chen, "Mining Density Contrast Subgraphs", *IEEE International Conference on Data Engineering*, April, 2018.

Lingyang Chu, Z. Wang, J. Pei, J. Wang, Z. Zhao and E. Chen, "Finding gangs in war from signed networks", *ACM SIGKDD Conferences on Knowledge Discovery and Data Mining*, August, 2016.

Lingyang Chu, S. Wang, S. Liu, Q. Huang and Jian Pei, "ALID: Scalable dominant cluster detection", *Proceedings of the VLDB Endowment*, 2015, 8(8): 826-837.

Lingyang Chu, S. Wang, Y. Zhang, S. Jiang and Q. Huang, "Graph density based visual word vocabulary for image retrieval", *International Conference on Multimedia & Expo*, Jul. 2014.

Lingyang Chu, S. Jiang and Q. Huang. "Fast common visual pattern detection via radiate geometric model", *International Conference on Image Processing*, Sept. 2011.

Y. Zhang, G. Li, **Lingyang Chu**, S. Wang, W. Zhang and Q. Huang. "Cross media topic detection: a multi-modality fusion framework", *International Conference on Multimedia & Expo*, Jul. 2013. **(Best Paper Candidate)**

S. Wang, Y. Xue, **Lingyang Chu**, Y. Jiang and S. Jiang, "ObjectSense: a scalable multi-objects recognition system based on partial duplicate image retrieval", *International Conference on Multimedia Retrieval*, Apr. 2013. **(Best Demo Award)**

T. Chen, S. Jiang, **Lingyang Chu** and Q. Huang, "Detection and location of near-duplicate video sub-clips by finding dense subgraphs", *ACM Multimedia*, Nov. 2011.

Selected Awards and Academic Service

Award 2013 Pacemaker to Merit Students in University of Chinese Academy of Sciences. (**Top 1%**)

Award 2006 Excellent Student of Academic Records in HUST. (**Top 1%**)

PC Member KDD, WSDM, DASFAA and ICME for the years of 2018 and 2019.

Journal Reviewer TKDE, TMM, KAIS, DMKD, DAMI, TKDD, etc.

External Reviewer VLDB 2016, WWW 2016, ICDE 2016, SIGIR 2017, KDD 2017, WSDM 2017, etc.