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Male, Birth: 1988-03

Lingyang Chu

Education

2015.09 – Now **DEAL Lab, Simon Fraser University (SFU)**.
Postdoctoral fellow, major in Data Mining.

2009.09 – 2015.07 **Institute of Computing Technology (ICT), Chinese Academy of Sciences (CAS)**.
Ph.D candidate, major in Computer Application Technology.

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

Research Interest

- Interpretation of deep neural networks.
- Dense subgraph detection algorithms and relative applications in social network.

Research Experience

2015.09 – Now **Efficient community mining in large scale social networks**.
This work efficiently detects the "Gangs In War (GIW)" from large scale social networks.
- Published on SIGKDD 2016.
- Highly efficient on large scale social networks.

2014.05 – 2015.06 **Anti-noise parallel clustering on big data**.
This technique efficiently detects dominant clusters from massive highly noisy data. It significantly reduces time and space complexity by localizing *Infection-Immunization Dynamics*.
- Published on VLDB 2015.
- Improves the data processing ability by orders of magnitudes than conventional methods.
- Processes 50 million SIFT features in 2 hours with 8 CPU cores. Speedup ratio: 7.5
- Built on Linux with *Spark* and *MongoDB*; implemented both in *Java* and *C*.

2012.07 – 2014.04 **Cross-media web event detection**.
This is a flexible multi-modality fusion framework, carefully designed to fully utilize the heterogenous cross-media web data for effective web event detection.
- Published on Trans. on CSVT 2014.
- Published on ICME 2013 as **best paper candidate**.
- Obtain a granted 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 SIFT features.
- Published on Trans. on Multimedia 2013.
- Build "ISIA" image search engine. (Online system: http://vipl.ict.ac.cn/isia)
- **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 wins the **best demo award**.
- Build "ObjectSense" object recognition system. (Online system: http://vipl.ict.ac.cn/isia)
- **Bronze award** on the 5-th China Popularized Science Products Exposition.

2013.10 – 2013.11 **Graph density based visual word vocabulary**.

This is an anti-noise visual word vocabulary, built by detecting SIFT dense subgraphs with *Infection Immunization Dynamics* and k-ary tree.

- Published on ICME 2014 as an oral paper.
- Applied for a national patent in China.

Papers and Patents

Transactions **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. **(SCI, IF:2.259)**

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. **(SCI, IF:1.776)**

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.

Conference **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. (EI, Oral, Accept rate 8%)

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. **(EI, 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. **(EI, 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.

Patents Q. Huang, Y. Zhang, **Lingyang Chu**, etc, "An effective framework for cross-media topic detection". (Authorized)

Awards

2014 Merit Scholarship of the Institute of Computing Technology. (Top 5%)

2013 National Scholarship of China. (**Top 3.8%**)

2013 Pacemaker to Merit Student in University of CAS. (**Top 1%**)

2009–2012 Merit Student in University of CAS. (Top 13%, 3 times)

2011 MSRA Innovation Award Second Place, VLPR 2011. (Top 2/14, Team leader)

2010 Outstanding Individual of Student Association in ICT.

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

2005–2009 Merit Student in HUST. (Top 10%, 4 times)