

# Cheng Xu

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EDUCATION	<b>Hong Kong Baptist University</b> Ph.D. in Computer Science Dissertation: Authenticated Query Processing in the Cloud Advisor: Prof. Jianliang Xu	Hong Kong Nov 2014 – Feb 2019
	<b>Huazhong University of Science and Technology</b> Bachelor of Engineering in Electronics & Information Engineering	Wuhan, China Sep 2009 – Jun 2014
RESEARCH INTERESTS	I am interested in Databases, Cryptography, Information Security and Privacy-Aware Computing. My current focuses include: <ul style="list-style-type: none"><li>• Authenticated query processing for outsourcing cloud computing.</li><li>• Searchable blockchain with integrity assurance.</li><li>• Privacy preserving query processing and access control.</li></ul>	
PROFESSIONAL EXPERIENCE	<b>Hong Kong Baptist University</b> <b>Ph.D. Candidate</b> <b>Senior Research Assistant</b>	Hong Kong Nov 2014 – Feb 2019 Dec 2018 – Present
	<ul style="list-style-type: none"><li>• Designed novel algorithms and indexes for cloud-based query services to support efficient verifiable query processing in a wide range of enterprise systems.</li><li>• Developed novel techniques to enable integrity assured search in scalable hybrid-storage blockchain systems.</li><li>• Resulted to several research papers published in top-tier journals and conferences.</li></ul>	
	<b>Syracuse University</b> <b>Visiting Scholar</b>	Syracuse, NY, USA Sep 2017 – Dec 2017
	<ul style="list-style-type: none"><li>• Advisor: Dr. Yuzhe Tang</li><li>• Designed and implemented a memory-access pattern secure software system on Intel SGX.</li><li>• Developed a dynamic program partitioning framework to support implementing a variety of external oblivious algorithms and achieving cache-miss obliviousness.</li></ul>	
	<b>Homebrew</b> <b>Core Maintainer</b>	Hong Kong Feb 2015 – Feb 2017
	<ul style="list-style-type: none"><li>• <a href="https://brew.sh">https://brew.sh</a></li><li>• Acted as one of the core maintainers for the open source project Homebrew, which is the most popular package manager on macOS.</li><li>• Implemented several major features and improvements including better tap system, core/formulae split, sandbox system, portable Ruby, and many bug fixes.</li></ul>	
	<b>Huazhong University of Science and Technology</b> <b>Final Year Project</b>	Wuhan, China Sep 2013 – Jun 2014
	<ul style="list-style-type: none"><li>• Advisor: Dr. Xiaojun Hei</li><li>• Designed and implemented a smart home router system using software defined network technology.</li></ul>	
PUBLICATIONS	1. <b>C. Xu</b> , C. Zhang, and J. Xu, “vChain: Enabling verifiable boolean range queries over blockchain databases,” in <i>Proceedings of the 2019 ACM SIGMOD International Conference on Management of Data (SIGMOD ’19)</i> , Amsterdam, Netherlands, Jun. 2019, Full Paper.	

2. S. Guo, J. Xu, C. Zhang, **C. Xu**, and T. Xiang, "ImageProof: Enabling authentication for large-scale image retrieval," in *Proceedings of the 35th IEEE International Conference on Data Engineering (ICDE '19)*, Macau SAR, China, Apr. 2019, Full Paper.
3. Y. Ji, **C. Xu**, J. Xu, and H. Hu, "vABS: Towards verifiable attribute-based search over shared cloud data," in *Proceedings of the 35th IEEE International Conference on Data Engineering (ICDE '19)*, Macau SAR, China, Apr. 2019, Demo Paper.
4. C. Zhang, **C. Xu**, J. Xu, Y. Tang, and B. Choi, "GEM<sup>2</sup>-Tree: A gas-efficient structure for authenticated range queries in blockchain," in *Proceedings of the 35th IEEE International Conference on Data Engineering (ICDE '19)*, Macau SAR, China, Apr. 2019, Full Paper.
5. **C. Xu**, J. Xu, H. Hu, and M. H. Au, "When query authentication meets fine-grained access control: A zero-knowledge approach," in *Proceedings of the 2018 ACM SIGMOD International Conference on Management of Data (SIGMOD '18)*, Houston, TX, USA, Jun. 2018, pp. 147–162, Full Paper.
6. C. Zhang, **C. Xu**, J. Xu, and B. Choi, "Distributed kNN query authentication," in *Proceedings of the 19th IEEE International Conference on Mobile Data Management (MDM '18)*, Aalborg, Denmark, Jun. 2018, pp. 167–176, Full Paper.
7. **C. Xu**, Q. Chen, H. Hu, J. Xu, and X. Hei, "Authenticating aggregate queries over set-valued data with confidentiality (extended abstract)," in *Proceedings of the 34th IEEE International Conference on Data Engineering (ICDE '18)*, Paris, France, Apr. 2018, pp. 1797–1798, Poster Paper.
8. **C. Xu**, Q. Chen, H. Hu, J. Xu, and X. Hei, "Authenticating aggregate queries over set-valued data with confidentiality," *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, vol. 30, no. 4, pp. 630–644, Apr. 2018, Full Paper.
9. Y. Tang, Z. Xing, **C. Xu**, J. Chen, and J. Xu, "Lightweight logging over the blockchain for data-intensive applications," in *2nd Workshop on Trusted Smart Contracts at International Conference on Financial Cryptography and Data Security*, Santa Barbara Beach Resort, Curaçao, Mar. 2018, pp. 308–324, Workshop Paper.
10. Q. Zhu, H. Hu, **C. Xu**, J. Xu, and W.-C. Lee, "Geo-social group queries with minimum acquaintance constraints," *The VLDB Journal (VLDBJ)*, vol. 26, no. 5, pp. 709–727, Jul. 2017, Full Paper.

## SKILLS

**Programming** C/C++, Rust, Java, Python, Ruby, Matlab, L<sup>A</sup>T<sub>E</sub>X, Bash, SQL, Vimscript, Javascript, HTML, CSS  
**Tools** Vim, Tmux, Git, macOS, Linux  
**Languages** English, Mandarin

## AWARDS

- SIGMOD Travel Award, ACM 2018
- Research Performance Award, Hong Kong Baptist University 2018
- Postgraduate Research Symposium Best Research Performance Award & Best Poster Award, Hong Kong Baptist University 2018
- Yakun Scholarship Scheme for Mainland Postgraduate Students, Hong Kong Baptist University 2018
- Excellent Teaching Assistant Performance Award, Hong Kong Baptist University 2017
- Teaching Assistant Performance Award, Hong Kong Baptist University 2015, 2016