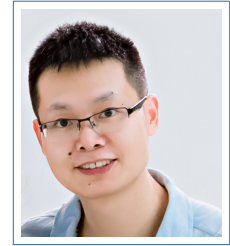


# Jingwei CHEN

## Curriculum Vitae

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### Research Interests

- Computer Algebra, especially in polynomial factorization
- Symbolic-numeric Computation, especially in integer relation finding
- Computational Number Theory, especially in algorithms for geometry of numbers
- Lattice-based Cryptography, especially in FHE and its application

### Positions

- 17.12– Chongqing Key Lab of Automated Reasoning and Cognition, Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences. Associate Professor
- 15.10–15.11 Fields Institute, University of Toronto. Academic Visitor
- 13.07–17.12 Chongqing Key Lab of Automated Reasoning and Cognition, Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences. Assistant Professor

### Education

- 12.01–12.12 Laboratoire de l'Informatique du Parallélisme, CNRS-ENSL-UCBL, Lyon, France.  
Visiting Ph.D. student  
Supervisors: Damien STEHLÉ and Gilles VILLARD
- 07.09–13.07 Chengdu Institute of Computer Applications, Chinese Academy of Sciences  
Degree: Ph.D. in Computer Science  
Dissertation: Study on Theories and Algorithms for Several Problems in Symbolic-Numeric Hybrid Computation  
Advisor: Yong FENG
- 03.09–07.06 College of Mathematics and Statistics, Southwest University, Chongqing, China  
Degree: Bachelor of Science in Mathematics and Applied Mathematics  
Advisor: Jia WANG

### Awards and Honors

- 11.10 CAS-CNRS (France): China-France Joint Doctoral Promotion Program
- 08.07 Graduate University, CAS: Excellent Graduate Student
- 07.06 Southwest University: Excellent Graduates
- 07.03 COMAP (USA): Honorable Mention of The Mathematical Contest in Modeling
- 05.11/06.11 CSIAM: Second Prizes of China Undergraduate Mathematical Contest in Modeling
- 05.12 Ministry of Education: National Scholarship

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## Grants

- 18.01-21.12 Youth Innovation Promotion Association CAS: *Lattice reduction algorithms and its application*, RMB 800,000.
- 16.01-18.12 National Natural Science Foundation of China (Grant No.: 11501540): *Error-controllable algorithms for integer relation finding and applications*, RMB 180,000.
- 15.01-17.12 “Light of the West” project of Chinese Academy of Sciences: *Lattice reduction and application in homomorphic encryption*, RMB 100,000.
- 12.01-12.12 “Miaozi” Project of Sichuan Province: *Implementation of efficient symbolic-numeric algorithms for polynomial factorization*, RMB 15,000.

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## Publications

- [1] Yang Liu, Jingwei Chen, Yong Feng, and Wenyuan Wu. Survey on parallel LLL algorithms (in Chinese). *Computer Engineering and Applications*, 55(16):36–41, 2019.
- [2] Yong Feng, Jingwei Chen, and Wenyuan Wu. The PSLQ algorithm for empirical data. *Mathematics of Computation*, 88:1479–1501, 2019.
- [3] Yang Liu, Jingwei Chen, Jun Liu, and Wei He. The application of data mining techniques in college students information system. In V. Gurumurthy Iyer, S. Balakrishnan, and M. Bhardwaj, editors, *Proceedings of the 2018 International Conference on Computer Science, Electronics and Communication Engineering (February 7-8, 2018, Wuhan, China)*, volume 80 of *Advances in Computer Science Research*, pages 353–357. Atlantis Press, Amsterdam, 2018.
- [4] Jingwei Chen, Damien Stehlé, and Gilles Villard. Computing an LLL-reduced basis of the orthogonal lattice. In Carlos Arreche, Manuel Kauers, Alexey Ovchinnikov, and Éric Schost, editors, *Proceedings of ISSAC’18 (July 16–19, 2018, New York, USA)*, pages 127–133. ACM, New York, 2018.
- [5] Jingwei Chen, Yong Feng, and Wenyuan Wu. Reducing lattice bases with Bergman exchange. In Yang Xiao and Maode Ma, editors, *Proceedings of the 9th IEEE International Conference on Communication Software and Network (May 6–8, 2017, Guangzhou, China)*, volume II, pages 630–634. IEEE, Piscataway, 2017.
- [6] Jingwei Chen, Yong Feng, Yang Liu, and Wenyuan Wu. Faster binary arithmetic operations on encrypted integers. In Yifei Chen, editor, *Proceedings of the 7th International Workshop on Computer Science and Engineering (June 25–27, 2017, Beijing, China)*, volume III, pages 956–960. The Science and Engineering Institute, Rowland Heights, LA, 2017.
- [7] Chen Xu, Jingwei Chen, Wenyuan Wu, and Yong Feng. Homomorphically encrypted arithmetic operations over the integer ring. In Feng Bao, Liqun Chen, Robert H. Deng, and Guojun Wang, editors, *Proceedings of the 12th International Conference on Information Security Practice and Experience (November 16–18, 2016, Zhangjiajie, China)*, volume 10060, pages 167–181. Springer, Cham, 2016.
- [8] Jingwei Chen, Yong Feng, Yang Liu, Bing Tang, and Wenyuan Wu. Sparse non-negative matrix factorization with generalized Kullback-Leibler divergence. In Hujun Yin, Yang Gao, Bin Li, Daoqiang Zhang, Ming Yang, Yun Li, Frank Klawonn, and Antonio Tallón, editors, *Proceedings of the 17th International Conference on Intelligent*

*Data Engineering and Automated Learning (October 12–14, 2016, Yangzhou, China)*, volume 9937, pages 353–360. Springer, Cham, 2016.

- [9] Yong Feng, Wenyuan Wu, Jingzhong Zhang, and Jingwei Chen. Exact bivariate polynomial factorization over  $\mathbb{Q}$  by approximation of roots. *Journal of Systems Science and Complexity*, 28(1):243 – 260, 2015.
- [10] Wenyuan Wu, Jingwei Chen, and Yong Feng. Sparse bivariate polynomial factorization. *Science China Mathematics*, 57(10):2123–2142, 2014.
- [11] Yong Feng, Jingwei Chen, and Wenyuan Wu. Two variants of HJLS-PSLQ with applications. In *Proceedings of the 2014 Symposium on Symbolic-Numeric Computation*, pages 88–96, Shanghai, China, 2014. ACM.
- [12] Xiaolin Qin, Yong Feng, Jingwei Chen, and Jingzhong Zhang. Parallel computation of real solving bivariate polynomial systems by zero-matching method. *Applied Mathematics and Computation*, 219(14):7533–7541, 2013.
- [13] Yong Feng, Jingwei Chen, and Wenyuan Wu. Incremental PSLQ with application to algebraic number reconstruction. *ACM Communications in Computer Algebra*, 47(3):112–113, 2013.
- [14] Jingwei Chen, Damien Stehlé, and Gilles Villard. A new view on HJLS and PSLQ: Sums and projections of lattices. In *Proceedings of the 38th International Symposium on Symbolic and Algebraic Computation*, pages 149–156, Boston, USA, 2013. ACM.
- [15] Wenyuan Wu, Jingwei Chen, and Yong Feng. An efficient algorithm to factorize sparse bivariate polynomials over the rationals. *ACM Communications in Computer Algebra*, 46(3):125–126, 2012.
- [16] Xiaolin Qin, Yong Feng, Jingwei Chen, and Jingzhong Zhang. A complete algorithm to find exact minimal polynomial by approximations. *International Journal of Computer Mathematics*, 89(17):2333–2344, 2012.
- [17] Jingwei Chen, Yong Feng, Xiaolin Qin, and Jingzhong Zhang. SIRD: An algorithm for simultaneous integer relations detection (in Chinese). *Journal of Sichuan University (Engineering Science Edition)*, 43(6):127–132, 2011.
- [18] Jingwei Chen, Yong Feng, Xiaolin Qin, and Jingzhong Zhang. Reconstructing minimal polynomial from approximate algebraic numbers (in Chinese). *Journal of System Science and Mathematical Sciences*, 31(8):903–912, 2011.
- [19] Xiaolin Qin, Yong Feng, Jingwei Chen, and Jun Li. Exact representation of real algebraic number by approximations and its applications (in Chinese). *Journal of Sichuan University (Engineering Science Edition)*, 42(2):126–131, 2010.
- [20] Xiaolin Qin, Yong Feng, Jingwei Chen, and Jingzhong Zhang. Finding exact minimal polynomial by approximations. In *Proceedings of the 2009 Conference on Symbolic Numeric Computation*, pages 125–132, Kyoto, Japan, 2009. ACM.
- [21] Jingwei Chen, Yong Feng, Xiaolin Qin, and Jingzhong Zhang. Exact polynomial factorization by approximate high degree algebraic numbers. In *Proceedings of the 2009 Conference on Symbolic Numeric Computation*, pages 21–28, Kyoto, Japan, 2009. ACM.

- [22] Jingwei Chen. The distribution of eigenvalues of a matrix (in Chinese). *Journal of Southwest University (Natural Science Edition)*, 29(11):45–47, 2007.

## Talks

- 18.11 Computing an LLL-reduced basis of the orthogonal lattice. JN Univ., Guangzhou  
18.10 Algorithms & experiments for computing integer relations. CM'18, Wuhan  
18.07 Computing an LLL-reduced basis of the orthogonal lattice. ISSAC'18, New York  
18.03 Finding integer relation via lattice reduction. Seminar on Error-free Computation, Chongqing  
17.10 An integer relation finding algorithm based on Lovász exchange. CM'17, Xiangtan  
17.05 Reducing lattice bases with Bergman exchange. ICCSN'17, Guangzhou  
16.10 Sparse non-negative matrix factorization with generalized Kullback-Leibler divergence. IDEAL'16, Yangzhou  
15.08 On integer relation finding problem: reducing knapsack lattice bases. 3rd HMSNC – 8th ICIAM, Beijing  
14.07 Two variants of HJLS-PSLQ with applications. SNC'14, Shanghai  
13.06 A new view on HJLS and PSLQ: Sums and projections of lattices. ISSAC'13, Boston  
12.12 A new view on PSLQ: Computing with projections of lattices. AriC work session, Lyon  
10.10 Reconstructing minimal polynomial from approximate algebraic numbers. CM'10, Shanghai

## Posters

- 13.06 Incremental PSLQ with application to algebraic number reconstruction. ISSAC'13, Boston  
12.07 An efficient algorithm to factorize sparse bivariate polynomials over the rationals. ISSAC'12, Grenoble

## Committees

- Program ICCSN'17, ICCT'19  
Local CM'14

## Referee/Reviewer

- Journal International Journal of Foundations of Computer Science, IEEE Access  
Conference FSDM'16, ICCSN'17, CM'18, ICCT'19, CASC'19

## Conferences Participated in

- 18.11 Annual Conference of Youth Innovation Promotion Association, CAS, Kunming  
18.10 10th Conference on Computer Mathematics, Wuhan  
18.09 Forum on FHE and Its Application, Guangzhou  
18.07 International Conference on Mathematical Software, South Bend  
18.07 43rd International Symposium on Symbolic and Algebraic Computation, New York

- 18.05 Youth Forum of Yangtze River Economic Zone, Kaizhou
- 17.10 ChinaCrypt'17, Ji'nan
- 17.10 9th Conference on Computer Mathematics, Xiangtan
- 17.06 7th International Workshop on Computer Science and Engineering, Beijing
- 17.05 Workshop on Cryptographic Algorithms, Guilin
- 17.05 9th International Conference on Communication Software and Networks, Guangzhou
- 16.12 Tsinghua-Cornell Workshop on Security and Cryptography, Beijing
- 16.11 Symposium on Mathematical Mechanization and Education Information Technology, Chengdu
- 16.11 12th International Conference on Information Security Practice and Experience, Zhangjiajie
- 16.10 17th International Conference on Intelligent Data Engineering and Automated Learning, Yangzhou
- 15.08 8th International Congress on Industrial and Applied Mathematics, Beijing
- 14.11 6th Conference on Computer Mathematics, Chongqing
- 14.07 International Workshop on Symbolic-Numeric Computation, Shanghai
- 13.06 38th International Symposium on Symbolic and Algebraic Computation, Boston
- 12.10 ECRYPT II Summer School on Lattices, Porto
- 12.07 37th International Symposium on Symbolic and Algebraic Computation, Grenoble
- 10.10 3rd Conference on Computer Mathematics, Shanghai