Lin Chen

Department of Computer Science, 211A
Texas Tech University, Lubbock, TX, USA

Tel: 806-742-3527
Email: chenlin198662@gmail.com

EDUCATION

Zhejiang University, Zhejiang, China

- B.S. Mathematics and Applied Mathematics, 2008
- Ph.D. Computer Science, 2013
    - Joint Ph.D Scholarship: Kiel University, Germany, 2011.10 – 2012. 9

    Supervisor: Guochuan Zhang, Klaus Jansen

WORK EXPERIENCE

- Assistant professor, Texas Tech University, since 2019.9
- Research assistant professor, University of Houston, 2017.1 – 2019.8
- Postdoctoral fellow, Hungarian Academy of Sciences (MTA SZTAKI), 2016.1 – 2016. 12
- Postdoctoral fellow, Technical University of Munich, 2015.9 – 2015.12
- Postdoctoral fellow, Technical University of Berlin, 2013.10 – 2015.8

RESEARCH INTERESTS

- Algorithms and computational complexity
- Security and privacy analysis
- Distributed computing, distributed systems, blockchain

GRANT

- P.I. of NSF award: NSF 1756014
  CRII: AF: Polynomial Time Approximation Schemes Subexponential in the Parameter
  Award date: 09/10/2018– 09/30/2021. $148,447

AWARDS

- Postdoctoral travel award from University of Houston, $1200, 2017.
- Best paper award at International Conference on Algorithmic Applications in Management (AAIM 2020)
- Best paper award at International Conference on Blockchain and Trustworthy Systems (Blocksys 2019)
- Best paper finalist at International Conference on Combinatorial Optimization and Applications (COCOA 2017)
- Best paper award at International Conference on Combinatorial Optimization and Applications (COCOA 2016)

SELECTED PUBLICATIONS

External link

- Google Scholar
- DBLP

Algorithms for Operational Research – Scheduling, Resource Allocation, Routing

- **Chen, L.**, Eberle, F., Megow, N., Schewior, K., Stein, C.: A General Framework for Handling Commitment in Online Throughput Maximization. Mathematical Programming, 1-33, 2020.
  - Conference version: In *Proceedings Conference on Integer Programming and Combinatorial Optimization (**IPCO** 2019)*, 141-154.

- Fang, K., Wang, S. J., Pinedo, M. L., **Chen, L.**, Chu, F.: A combinatorial Benders decomposition algorithm for parallel machine scheduling with working-time restrictions, European Journal of Operational Research. To appear.

- **Chen, L.**, Megow, N., Schewior, K.: An O(log m)-Competitive Algorithm for Online Machine Minimization. SIAM Journal on Computing, 47 (6), 2057-2077, 2019.
  - Conference version: In *Proceedings of the 27th ACM-SIAM Symposium on Discrete Algorithms (**SODA** 2016)*, 155–163.

- Abed, F., **Chen, L.**, Disser, Y., Groß, M., Megow, N., Meissner, J., Richter, A., Rischke, R.: Scheduling Maintenance Jobs in Networks. Theoretical Computer Science 754, 107-121, 2019.

- **Chen, L.**, Zhang, G.C.: Packing Groups of Items into Multiple Knapsacks. ACM transactions on algorithms, 14(4), 2018.
  - Conference version: In *Proceedings of the 33rd International Symposium on Theoretical Aspects of Computer Science (**STACS** 2016)*, 28:1–28:13.

- **Chen, L.**, Jansen, K., Zhang, G.C.: On the Optimality of Approximation Schemes for the Classical Scheduling Problem. Journal of Computer and System Science, 96, 1-32, 2018.
  - Conference version: In *Proceedings of the 25th ACM-SIAM Symposium on Discrete Algorithms (**SODA** 2014)*, 657–668.

- **Chen, L.**, Ye, D.S., Zhang, G.C: Parallel machine scheduling with speed-up resources. European Journal of Operational Research 268(1), 101-112, 2018.
  - Conference version: In *Proceedings of the 19th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems and 20th Randomization and Approximation Techniques in Computer Science (**APPROX-RANDOM** 2016)*, 5:1–5:12.

- **Chen, L.**, Marx, D., Ye, D.S., Zhang, G.C.: Parameterized and Approximation Results for Scheduling with a Low Rank Processing Time Matrix. In *Proceedings of the 34rd International Symposium on Theoretical Aspects of Computer Science (**STACS** 2017)*, 22:1–22:14.

- **Chen, L.**, Megow, N., Schewior, K.: The Power of Migration in Online Machine Minimization. In *Proceedings of the 28th ACM Symposium on Parallelism in Algorithms and Architectures (**SPAA** 2016)*, 175–184.

- **Chen, L.**, Jansen, K., Luo, W.C., Zhang, G.C.: An Efficient PTAS for Parallel Machine Scheduling with Capacity Constraints. In *Proceedings of the 10th Annual International Conference on Combinatorial Optimization and Applications (**COCOA** 2016)*, 608–623. **Best paper award**.

Computational Social Choice, Multi-agent Systems

- **Chen, L.**, Sunny, A., Xu, L., Xu, S.H., Gao, Z.M., Lu, Y., Shi, W.D., Shah, N.: Computational complexity characterization of protecting elections from bribery. In: *Proceedings of International Computing and Combinatorics Conference (**COCOON** 2020)*, 85-97. Springer, Cham.

- **Chen, L.**, Xu, L., Xu, S.H., Gao, Z.M., Shi, W.D.: Election with Bribe-Effect Uncertainty: A Dichotomy Result. In *Proceedings International Joint Conference on Artificial Intelligence (**IJCAI** 2019)*, 158 - 164.

- **Chen, L.**, Xu, L., Xu, S.H., Gao, Z.M., Shi, W.D.: Election with Bribed Voter Uncertainty: Hardness and Approximation Algorithm. In *Proceedings AAAI Conference on Artificial Intelligence (**AAAI** 2019)*, 2572 - 2579.

Algorithmic Foundation – Integer Programming

- **Chen, L.**, Koutecky, M., Xu, L., Shi, W. D.: New Bounds on Augmenting Steps of Block-structured Integer Programs. In *Proceedings of 28th Annual European Symposium on Algorithms (**ESA** 2020)*, to appear.

- **Chen, L.**, Marx, D.: Covering a Tree with Rooted Subtrees – Parameterized and Approximation Algorithms. In *Proceedings of the 29th ACM-SIAM Symposium on Discrete Algorithms (**SODA** 2018)*, 2801–2820.

Blockchain, Security and Privacy

- Xu, L., **Chen, L.**, Gao, Z.M., Kim, H., Suh, T., Shi, W.D.: FPGA based Enclave for Industrial IoT Blockchain Systems. In: *Proceedings of IEEE International Conference on Trust, Security and Privacy in Computing and Communications (**IEEE TrustCom** 2020)*, To appear.

- Xu, L., Gao, Z.M., Fan, X.X., **Chen, L.**, Kim, H., Suh, T., Shi, W.D.: Blockchain based End-to-end Tracking System for Distributed IoT Intelligence Application Security Enhancement. In: *Proceedings of IEEE International Conference on Trust, Security and Privacy in Computing and Communications (**IEEE TrustCom** 2020)*, To appear.

- Xu, L., **Chen, L.**, Gao, Z.M., Kasichainula, K., Fernandez, M., Carbunar, B., Shi, W.D.: PrivateEx: Privacy Preserving Exchange of Crypto-assets on Blockchain. In: *Proceedings of the 35th ACM/SIGAPP Symposium On Applied Computing (**ACM SAC 2020**)*, 316-323.

- Xu, L., **Chen, L.**, Gao, Z.M., Fan, X.X., Doan, K., Xu, S., Shi, W.D.: KCRS: A Blockchain-Based Key Compromise Resilient Signature System. In: *Proceedings of International Conference on Blockchain and Trustworthy Systems (**Blocksys** 2019)*. **Best paper award (2 out of 130 submissions)**.

- **Chen, L.**, Xu, L., Gao, Z.M., Shah, N., Lu, Y., Shi, W.D.: Smart Contract Execution – the (+)-Biased Ballot Problem. In *Proceedings of the 28th International Symposium on Algorithms and Computation (**ISAAC** 2017)*, 21:1–21:12.

- Gao, Z.M., Xu, L., **Chen, L.**, Shah, N., Lu, Y. and Shi, W.D.: Scalable Blockchain Based Smart Contract Execution. In *Proceedings of the 23rd IEEE International Conference on Parallel and Distributed Systems (**ICPADS** 2017)*, 352–359.

- **Chen, L.**, Xu, L., Shah, N., Gao, Z.M., Lu, Y. and Shi, W.D.: On Security Analysis of Proof-of-Elapsed-Time (PoET). In *Proceedings of the 19th Annual International Symposium on Stabilization, Safety, and Security of Distributed Systems (**SSS** 2017)*, 282–297.

- Xu, L., **Chen, L.**, Gao, Z.M., Lu, Y., Shi, W.D: CoC: Secure Supply Chain Management System Based on Public Ledger. In *Proceedings of the 26th International Conference on Computer Communication and Network (**ICCCN** 2017)*, 1-6.

Refer to http://www.myweb.ttu.edu/che90574/ for my full publication list.

PROJECTS

I have worked on the following projects, focusing on developing algorithms, carrying out security analysis by showing complexity results, and carrying out privacy analysis.

- DDoS Resilient Emergency Dispatch Service, DHS. 2,646,327$.

- Privacy Preserving Big Data Processing Using Cloud Computing, NATO. 355,888€

- Secure and Transparent Cargo Supply Chain: Enabling Chain-of-custody with Economical and Privacy Respecting Biometrics, and Blockchain Technology, DHS. 246,256$.

- Parameterized complexity and the search for tight complexity results, ERC start grant. 1,150,000€.
- Models, algorithms and complexity for scheduling under uncertainty: On the tradeoffs between performance and adaptivity, DFG(German Research Foundation).

TEACHING

- Fall 2020, CS 3383/5383, Theory of Automata, Texas Tech University
- Spring 2020, CS 5331, Special topics - Advanced Algorithms, Texas Tech University
- Fall 2019, CS 3383, Theory of Automata, Texas Tech University

Mentorship:
- Ph.D students under my supervision:
  - Ahmed Sunny
  - Mahabub Zaman
  - Chang Liu
- I helped in mentoring students from a diverse background
  - Ph.D students Roman Rischke and Kevin Schewior at Technical University of Berlin
  - Ph.D student Zhimin Gao, Abraham Baez Suarez (Hispanic) at University of Houston
  - Undergraduate students Larry Carranco (Hispanic), Nour Diallo (black), Amruta Ghodke (female), Pushpendra Pushpendra, Nitisha Rawat (female), Nolan Shah and Damon Spencer (black) at University of Houston.
    * Nolan Shah has won *Honorable Mention, CRA Outstanding Undergraduate Researchers* 2018.

PROFESSIONAL SERVICES

- I am a PC member of the top-tier conference: AAAI Conference on Artificial Intelligence (AAAI 2021)
- I am a PC member of the top-tier conference: International Symposium on Algorithms and Computation (ISAAC 2019).
- I am a PC Member of the top-tier conference: IEEE International Conference on Distributed Computing Systems (ICDCS 2019).
- I was a member of annual faculty performance review committee at department of computer science, University of Houston, 2018.
- I served as a reviewer of grant proposals for National Science Centre, Poland, 2018.
- I served as a reviewer for journals including Mathematics of Operations Research, Algorithmica, Journal of Scheduling, Journal of Combinatorial Optimization, Theoretical Computer Science, IEEE Transactions on Mobile Computing, Operations Research Letters, etc.
- I served as a reviewer for conferences including European Symposium on Algorithms (ESA 2018), ACM-SIAM Symposium on Discrete Algorithms (SODA 2021,2019,2018,2017), ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2017), Mathematical Foundations of Computer Science (MFCS 2018), International Symposium on Algorithms and Computation (ISAAC 2017, 2015), etc.