

Research Papers

Locks and Synchronization Mechanisms

- [Lock cohorting: a general technique for designing NUMA locks](#), David Dice, Virendra J. Marathe, Nir Shavit
- [Flat combining and the synchronization-parallelism tradeoff](#), Danny Hendler, Itai Incze, Nir Shavit, Moran Tzafrir
- [Revisiting the combining synchronization technique](#), Panagiota Fatourou, Nikolaos D. Kallimanis
- Panagiota Fatourou, [Nikolaos D. Kallimanis](#): *Lock Oscillation: Boosting the Performance of Concurrent Data Structures*. *OPODIS 2017*: 8:1-8:17
- [Fair Synchronization](#), Gadi Taubenfeld
- Panagiota Fatourou, [Nikolaos D. Kallimanis](#): *A highly-efficient wait-free universal construction*. *SPAA 2011*: 325-334
- Panagiota Fatourou, [Nikolaos D. Kallimanis](#), [Eleni Kanellou](#): *An Efficient Universal Construction for Large Objects*. *OPODIS 2019*: 18:1-18:15

Transactional Memory

- [Transactional Locking II](#), Dave Dice, Ori Shalev, Nir Shavit
- Maurice Herlihy, Victor Luchangco, Mark Moir, and William N. Scherer, III. Software transactional memory for dynamic-sized data structures. In Proc. 22nd ACM Symposium on Principles of Distributed Computing, pages 92{101, 2003.

Concurrent Data Structures

- [Obstruction-free synchronization: Double-ended queues as an example](#), Maurice Herlihy, Victor Luchangco, Mark Moir
- [The SprayList: a scalable relaxed priority queue](#), Dan Alistarh, Justin Kopinsky, Jerry Li, Nir Shavit
- [Gal Milman, Alex Kogan, Yossi Lev, Victor Luchangco, Erez Petrank: BQ: A Lock-Free Queue with Batching](#). *SPAA 2018*: 99-109
- [Shahar Timnat, Erez Petrank: A practical wait-free simulation for lock-free data structures](#). *PPOPP 2014*: 357-368
- Greg Barnes. A method for implementing lock-free data structures. In Proc. 5th ACM Symposium on Parallel Algorithms and Architectures, pages 261{270, 1993.
- Mikhail Fomitchev and Eric Ruppert. Lock-free linked lists and skip lists. In Proc. 23rd ACM Symposium on Principles of Distributed Computing, pages 50{59, 2004.
- Maged M. Michael. High performance dynamic lock-free hash tables and list-based sets. In Proc. 14th ACM Symposium on Parallel Algorithms and Architectures, pages 73{82, 2002.
- Aravind Natarajan and Neeraj Mittal. Fast concurrent lock-free binary search trees. In Proc. 19th ACM Symposium on Principles and Practice of Parallel Programming, pages 317{328, 2014.
- Otto Nurmi and Eljas Soisalon-Soininen. Chromatic binary search trees: A structure for concurrent rebalancing. *Acta Informatica*, 33(6):547{557, 1996.
- Rotem Oshman and Nir Shavit. The SkipTrie: Low-depth concurrent search without rebalancing. In Proc. ACM Symposium on Principles of Distributed Computing, pages 23{32, 2013.

Range Queries

- [Persistent Non-Blocking Binary Search Trees Supporting Wait-Free Range Queries](#), Panagiota Fatourou, Elias Papavasileiou, Eric Ruppert"
- Panagiota Fatourou, [Yiannis Nikolakopoulos](#), [Marina Papatriantafilou](#)^{ID}: *Linearizable Wait-Free Iteration Operations in Shared Double-Ended Queues*. *Parallel Process. Lett.* 27(2): 1750001:1-1750001:17 (2017)

Big Data: Data Series Indexing

- [Botao Peng](#), Panagiota Fatourou, [Themis Palpanas](#): *MESSI: In-Memory Data Series Indexing*. *ICDE 2020*: 337-348
- [Botao Peng](#), Panagiota Fatourou, [Themis Palpanas](#): *ParIS: The Next Destination for Fast Data Series Indexing and Query Answering*. *BigData 2018*: 791-800

Non-Volatile Memory (NVM)-based Computing

- [Hagit Attiya](#), [Ohad Ben-Baruch](#), Panagiota Fatourou, [Danny Hendler](#), [Eleftherios Kosmas](#): *Tracking in Order to Recover: Recoverable Lock-Free Data Structures*. *CoRR abs/1905.13600* (2019)
- [Michal Friedman](#), [Maurice Herlihy](#), [Virendra J. Marathe](#), Erez Petrank: *A persistent lock-free queue for non-volatile memory*. *PPOPP 2018*: 28-40
- [Naama Ben-David](#), [Guy E. Blelloch](#), [Yuanhao Wei](#): *Making Concurrent Algorithms Detectable*. *CoRR abs/1806.04780* (2018)
- H. Attiya, O. Ben-Baruch, and D. Hendler. Nesting-safe recoverable linearizability: Modular constructions for non-volatile memory. In Proceedings of the 2018 ACM Symposium on Principles of Distributed Computing, PODC 2018, Egham, United Kingdom, July 23-27, 2018, pages 7–16, 2018.
- K. Bhandari, D. R. Chakrabarti, and H.-J. Boehm. Makalu: Fast recoverable allocation of non-volatile memory. *SIGPLAN Not.*, 51(10):677–694, Oct. 2016.
- D. R. Chakrabarti, H.-J. Boehm, and K. Bhandari. Atlas: Leveraging locks for non-volatile memory consistency. *SIGPLAN Not.*, 49(10):433–452, Oct. 2014.
- J. Coburn, A. M. Caulfield, A. Akel, L. M. Grupp, R. K. Gupta, R. Jhala, and S. Swanson. Nv-heaps: making persistent objects fast and safe with next-generation, non-volatile memories. In Proceedings of the 16th International Conference on Architectural Support for Programming Languages and Operating Systems, ASPLOS 2011, Newport Beach, CA, USA, March 5-11, 2011, pages 105–118, 2011.
- A. Correia, P. Felber, and P. Ramalhete. Romulus: Efficient algorithms for persistent transactional memory. In Proceedings of the 30th on Symposium on Parallelism in Algorithms and Architectures, SPAA 2018, Vienna, Austria, July 16-18, 2018, pages 271–282, 2018.
- W. M. Golab and A. Ramaraju. Recoverable mutual exclusion. In Proceedings of the 2016 ACM Symposium on Principles of Distributed Computing, PODC 2016, Chicago, IL, USA, July 25-28, 2016, pages 65–74, 2016.
- P. Jayanti and A. Joshi. Recoverable FCFS mutual exclusion with waitfree recovery. In 31st International Symposium on Distributed Computing, DISC 2017, October 16-20, 2017, Vienna, Austria, pages 30:1–30:15, 2017.
- S. Venkataraman, N. Tolia, P. Ranganathan, and R. H. Campbell. Consistent and durable data structures for non-volatile byte-addressable memory. In 9th USENIX Conference on File and Storage Technologies, San Jose, CA, USA, February 15-17, 2011, pages 61–75, 2011.

- T. Wang, J. J. Levandoski, and P. Larson. Easy lock-free indexing in non-volatile memory. In 34th IEEE International Conference on Data Engineering, ICDE 2018, Paris, France, April 16-19, 2018, pages 461–472, 2018.
- Vasilis Gavrielatos, Antonios Katsarakis, Vijay Nagarajan, Boris Grot, and Arpit Joshi. 2020. Kite: efficient and available release consistency for the datacenter. In *Proceedings of the 25th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP '20)*. Association for Computing Machinery, New York, NY, USA, 1–16. DOI:<https://doi.org/10.1145/3332466.3374516>

Blockchain and cryptocurrencies

- Eyal, I., Gencer, A. E., Sirer, E. G., and Van Renesse, R. Bitcoin-NG: A Scalable Blockchain Protocol, 2016.
- Androulaki, E., Barger, A., Bortnikov, V., Cachin, C., Christidis, K., De Caro, A., Enyeart, D., Ferris, C., Laventman, G., Manevich, Y., Muralidharan, S., Murthy, C., Nguyen, B., Sethi, M., Singh, G., Smith, K., Sorniotti, A., Stathakopoulou, C., Vukolić, M., Cocco, S. W., and Yellick, J. Hyperledger fabric: A distributed operating system for permissioned blockchains. In *Proceedings of the Thirteenth EuroSys Conference (New York, NY, USA, 2018)*, Eu-roSys '18, ACM, pp. 30:1–30:15.
- Wood, G. Ethereum: A secure decentralized generalized transaction ledger. White paper, 2015 (two papers who must be studied together and be presented together in one presentation by one student).
- Hearn, M. Corda: A distributed ledger. Corda Technical White Paper, 2016.

Distributed Systems (mix)

- [The Chubby lock service for loosely-coupled distributed systems, Mike Burrows](#)
- [High-performance RMA-based broadcast on the intel SCC, Darko Petrovic, Omid Shahmirzadi, Thomas Ropars, André Schiper](#)
- M. Demmer and M. Herlihy, “The arrow distributed Directory Protocol”, pp.119-133, DISC 1998.
- Crainiceanu, Linga, Gehrke and Shanmugasundara, “Querying P2P Networks using P-trees”, WebDB 2004.
- Zhang, Kalnis, Chin Ooi, Tan, “Generalized Multi-Dimensional Data Mapping and Query Processing”, ACM Trans. on Database Systems, 2005.
- Aspnes and Shah, “Skip Graphs”, SODA 2003.
- Aspnes, Kirch and Krishnamurthy, “Load Balancing and Locality in Range-Queryable Data Structures”, PODC 2004.