Current Projects and Recent Publications of H. K. Dai

1 Current Projects

1. **Universal Traversal Sequences**

   Implementing efficient sequential and parallel algorithms for an analytical-computational method for finding tighter length lower bounds for universal traversal sequences; combinatorial problems embedded in the study of universal traversal sequences.

2. **Combinatorial Algorithms**

   Example studies include parallel algorithms for finding minimal maximum subsequences, multiple-criteria/objective selection, and data-mining algorithms.

3. **Index Structures**

   Studying space-filling indexing methods and tree index structures for multi-dimensional data.

2 Recent Publications

1. **Parallel/Distributed Computation**

   M. Toulouse, H. K. Dai, and T. G. Le. Distributed load-balancing for account-based sharded blockchains. *International Journal of Web Information Systems*, volume 18, numbers 2/3, pages 100-116, 2022.

   M. Toulouse, H. K. Dai, and Q. L. Nguyen. A consensus-based load-balancing algorithm for sharded blockchains. In T. K. Dang, J. Küng, T. M. Chung, and M. Takizawa, editors, *Lecture Notes in Computer Science (13076): Future Data and Security Engineering, 8th International Conference, FDSE 2021, Virtual Event, November 24-26, 2021 Proceedings*, pages 239-259, Springer-Verlag, Berlin Heidelberg, 2021.

   H. K. Dai and M. Toulouse. Relating network-diameter and network-minimum-degree for distributed function computation. In T. K. Dang, J. Küng, M. Takizawa, and T. M. Chung, editors, *Lecture Notes in Computer Science (12466): Future Data and Security Engineering, 7th International Conference, FDSE 2020, Quy Nhon, Vietnam, November 25-27, 2020, Proceedings*, pages 134-150, Springer-Verlag, Berlin Heidelberg, 2020.

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   H. K. Dai and M. Toulouse. Lower bound for function computation in distributed networks. In T. K. Dang, J. Küng, R. Wagner, N. Thoai, and M. Takizawa, editors, *Lecture Notes in Computer Science (11251): Future Data and Security Engineering, 5th International Conference, FDSE 2018, Ho Chi Minh City, Vietnam, November 28-30, 2018, Proceedings*, pages 371-384, Springer-Verlag, Berlin Heidelberg, 2018.

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J. H. Park and H. K. Dai. Reconfigurable hardware solution to parallel prefix computation. Journal of Supercomputing, 43(1):43-58, January 2008.

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2. **Universal Traversal Sequences**

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3. **Index Structures**

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4. **Combinatorial and Bioinformatic Algorithms**

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5. **Computer Networks**

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7. **Miscellaneous**

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