CURRICULUM VITAE
Sanpawat Kantabutra

Associate Professor of Computer Science
The Theory of Computation Group and The Center of Excellence in Quantum Technology, Department of Computer Engineering
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EDUCATION:

Doctor of Philosophy (Theoretical Computer Science) Tufts University, USA, 2001
Dissertation: Efficient Representation of Cluster Structure in Large Data Sets
Advisor: Dr. Alva L. Couch

Master of Science (Computer Engineering) Syracuse University, USA, 1996
Thesis: The D Language -- C++ with Extensions of Safety
Advisor: Dr. James Fawcett

Bachelor of Art (Accounting) Chiang Mai University, Thailand, 1991

EMPLOYMENTS:

2023	External Expert on the Revised Curriculum for the Bachelor of Arts and Science in Integrated Innovation (International Program), Chulalongkorn University
2021- 2022	Head of the Problems Preparation Team for the 18th Thailand Olympiad in Informatics
2021-present	Director of the Center of Excellence in Quantum Technology at Chiang Mai University
2020-present	Visiting Mathematics Lecturer, School of Integrated Innovation, Chulalongkorn University, Thailand
2021-March 2022	Administrative Board Member of the Research Center for Quantum Technology at Chiang Mai University
2019-March 2022	Researcher at the Quantum Technology Research Center, Chiang Mai University, Thailand
2011-present	Thailand Research Fund Career Award Research Scholar (เมธีวิจัย สกว.)
2013-present	Associate Professor, Department of Computer Engineering, Faculty of Engineering, Chiang Mai University, Thailand
2011-2013	Chair of the Graduate Study Executive Committee, Department of Computer Engineering, Faculty of Engineering, Chiang Mai University, Thailand
2011-2013	Assistant Professor, Department of Computer Engineering, Faculty of Engineering, Chiang Mai University, Thailand
2009-2010	Head of the Problems Preparation Team for the 6th Thailand Olympiad in Informatics
2008-2016	Royal Golden Jubilee Scholar of the Thailand Research Fund
2009	Secretary and Member of the Department Chair Search Committee
2008-11	Member of the Faculty of Science Committee on Graduate Studies, Faculty of Science, Chiang Mai University, Thailand
2009-11	Member of the Department Executive Committee, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand

2008-09	Elected Member of the Department Executive Committee, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand
2007-11	Chair of the Ph.D. Program Executive Committee, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand
2004-11	Assistant Professor, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand
2001-04	Lecturer, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand
2004-06, 2006-11	Member of the Graduate Studies Committee, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand
February-May 2007	Visiting Assistant Professor, School of Computing, Armstrong Atlantic State University, Savannah, Georgia, USA
2005-07, 2009-11	Member of the Faculty of Science Committee on Research and International Relations, Faculty of Science, Chiang Mai University, Thailand
2005-07	Deputy Department Chair on Research, Department of Computer Science, Faculty of Science, Chiang Mai University, Thailand

HONORS AND AWARDS:

- Distinguished Alumni Award from the Saint Gabriel Foundation of Thailand, Assumption College Lampang Alumni Association, and Assumption College Lampang
- Best Publication Award for Publishing the Highest Number of Journal Articles in SCOPUS between 2016-2017 in the Senior Researcher Category, Faculty of Engineering, Chiang Mai University
- Research Career Development Grant (เมธีวิจัย สกว.), Thailand Research Fund, 2011-2014, 2017-2020.
- Two Royal Golden Jubilee Ph.D. Scholarships, Thailand Research Fund, October 2008-October 2011, October 2009-October 2012, One Royal Golden Jubilee Ph.D. Scholarship, National Research Council of Thailand, 2021-2024
- Erdös number is at most 3. Dijkstra number is at most 4.
- Royal Thai Government Scholarship for a Ph.D. Study, 1997-2001*
- Full Tuition Scholarship Award for Academic Excellence, Fall 1998, Department of Electrical Engineering and Computer Science, Tufts University, USA

INDUSTRIAL EXPERIENCE:

- CLRS Algorithm Design Industrial Training, January 2023 – present
- Mathematics for Computer Science for Industry, January 2023 – present
- Consultant for BETiMES SOLUTIONS Co., LTD., January 2023 – present
- Workshop on Algorithm Design for Working Programmers for Code App Co., LTD., September 17-18, 2022, Bangkok, Thailand
- Workshop on Algorithm Design for Working Programmers for Krungsri Nimble Co., LTD., November 4-5, 2023, Bangkok, Thailand
- Workshop on Algorithm Design for Working Programmers for LINE Co., LTD., February 3-4, 2024, Bangkok, Thailand
- Workshop on Algorithm Design for Working Programmers for ODDS Co., LTD., March 23-24, 2024, Chiang Mai, Thailand

PROFESSIONAL ACTIVITIES:

- Guest Editor of the Special Issue for ICS 2022, *Journal of Internet Technology*, Vol. 25, No. 2, pp. 281-282, March 2024.
- Regular Reviewer for the TRF Research Proposals and TRF Grants
- Technical Program Committee Member for the *40th Symposium on Combinatorial Mathematics and Computational Theory* (CMCT 2023), Taoyuan, Taiwan, May 19-20, 2023.
- Technical Program Committee Member for the *International Computer Symposium* (ICS 2022) in the Workshop on Algorithms, Bioinformatics, and Computation Theory, Taoyuan, Taiwan, December 15-17, 2022.

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* The scholarship obligation with Chiang Mai University has ended since 22 June 2010.

- Associate Editor of the Special Issue of the Maejo International Journal of Science and Technology (ICSEC 2014).
- Technical Program Committee Member for the *International Computer Symposium* (ICS 2014) in the Workshop on Algorithms and Computation Theory, Taichung, Taiwan, December 12-14, 2014.
- Judge and Problem Setter of the *ACM-ICPC Northern Regional Programming Contest*, September 21, 2014.
- Lecturer for the Institute for the Promotion of Teaching Science and Technology on Theoretical Computer Science (Computer Olympics Training Camp), March 28-29, 2012.
- Judge of *the ACM-ICPC Asia Phuket Regional Programming Contest*, November 3-4, 2011, Phuket, Thailand
- Member of the Scientific Committee for *the 2012 Thailand Olympiad in Informatics (TOI)*, May 1-4, 2012, Nakornpathom, Thailand
- Guest Editor of the Special Issue of *the Chiang Mai Journal of Science*, Volume 38, March 2011
- Member of the Scientific Committee for *the 2011 Thailand Olympiad in Informatics (TOI)*, May 2-6, 2011, Pittsanulok, Thailand
- Problem Designer and Developer for *the 2010 Thailand Olympiad in Informatics (TOI)*, May 3-7, 2010, Chiang Mai, Thailand
- Technical Program Co-Chair for *the 2010 International Computer Science and Engineering Conference (ICSEC10)* and Technical Program Chair for *the 2010 National Computer Science and Engineering Conference (NCSEC10)*, November 17-19, 2010, Chiang Mai, Thailand
- Referee for the Following Journals
    - *IEEE Computational Intelligence Magazine*
    - *Journal of Parallel and Distributed Computing*
    - *IEEE Transactions on Fuzzy Systems*
    - *IEEE Transactions on Pattern Analysis and Machine Intelligence*
    - *IEEE Signal Processing Letters*
    - *IEEE Transactions on Systems, Man and Cybernetics*
    - *ECTI Transactions*
    - *Chiang Mai Journal of Science*
    - *Maejo International Journal of Science and Technology*
    - *Engineering Journal*
    - *Khon Kaen University Research Journal*

- Referee for the Following Conferences
    - *the 6th Khon Kaen University International Engineering Conference (KKU-IENC 2016)*, August 3-5, 2016, Khon Kaen, Thailand
    - *the 7th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTI-CON10)*, May 19-21, 2010, Chiang Mai, Thailand
    - *the Conference on Knowledge and Smart Technologies*, July 24-25, 2009, Chonburi, Thailand
    - *the First International Conference on Networked Digital Technologies*, July 28-31, 2009, Ostrava, Czech Republic
    - *the 6th International Joint Conference on Computer Science and Software Engineering (JCSSE09)*, May 13-15, 2009, Phuket, Thailand
    - *the 6th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTI-CON09)*, May 6-9, 2009, Pattaya, Thailand
    - *the 9th ACIS/IEEE International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2008)*, August 6-8, 2008, Phuket, Thailand
    - *the 5th International Joint Conference on Computer Science and Software Engineering (JCSSE08)*, May 7-9, 2008, Kanchanaburi, Thailand
    - *the 5th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTI-CON08)*, May 14-17, 2008, Krabi, Thailand
    - *the 4th Kasetsart University-Kamphaeng Saen Campus Conference*, Kasetsart University, December 6-7, 2007, Kamphaeng Saen, Nakon Pathom, Thailand

- *the 22nd International Symposium on Computer and Information Sciences (ISCIS07)*, Middle East Technical University, November 7-9, 2007, Ankara, Turkey
- *the National Computer Science and Engineering Conference* (2001-present)
- *the Northeastern Computer Science and Engineering Conference*

- Program Committee Member for the Following Conferences
  - *the 14th International Symposium on Pervasive Systems, Algorithms, and Networks* (I-SPAN 2017), June 21-23, 2017, Exeter, UK
  - *the 11 th International Conference on Software and Data Technologies (ICSOFT-EA 2016)*, July 24-26, 2016, Lisbon, Portugal
  - *the 2012 International Computer Symposium, December 12-14, 2014, Taichung, Taiwan*
  - *the 2012 International Computer Symposium, December 12-14, 2012, Hualien, Taiwan*
  - *the International Conference on Data Technologies and Applications (DATA2012)*, July 25-27, 2012, Rome, Italy
  - *the 7 th International Conference on Software and Data Technologies (ICSOFT2012)*, July 24-27, 2012, Rome, Italy
  - *the 6 th International Conference on Software and Data Technologies (ICSOFT2011)*, July 18-21, 2011, Seville, Spain
  - *the 4th International Conference on Software and Data Technologies (ICSOFT2009)*, July 26-29, 2009, Sofia, Bulgaria
  - *the 10th ACIS/IEEE International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2009)*, May 27-29, 2009, Daegu, Korea
  - *the 2009 International Conference in Software Engineering and Computer Systems (ICSECS'09)*, October 19-21, 2009, Universiti Malaysia Pahang, Malaysia
  - *the 9th ACIS/IEEE International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2008)*, August 6-8, 2008, Phuket, Thailand
  - *the 2003 National Workshop on Cluster Computing*, Asian Institute of Technology, Bangkok, Thailand

- Chairs of the Technical Sessions for the Following Conferences
  - *the RGJ Seminar Series LXVI : PhD-RGJ in Computer Science, Information Technology, and Computer Engineering*, December 9, 2009, Khon Kaen, Thailand
  - *the 9th ACIS/IEEE International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2008)*, August 6-8, 2008, Phuket, Thailand
    - On Data Mining and Knowledge Discovery
    - On Service-Oriented Computing and Software Specification and Architecture
    - On Mobile/Wireless/Ad-hoc Networks
  - *the 5th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTI-CON08)*, May 14-17, 2008, Krabi, Thailand
    - On Algorithms and Computational Theory
  - *the 2004 IEEE TENCON Conference*
  - *the 2003 ISCIT Conference*
  - *the 2002 ISCIT Conference*
- Initiator of Academic Cooperation between Armstrong Atlantic State University, USA, and Chiang Mai University, Thailand
- Initiator of Academic Cooperation between National Dong Hwa University, Taiwan, R.O.C., and Chiang Mai University, Thailand
- Group Leader and Founder of The Theory of Computation Group, Chiang Mai University
- Fulbright Foundation Coordinator for Bringing Professor Raymond Greenlaw to Thailand, 2006
- Local Organization Chair of *the 2004 Asian Computing Conference (ASIAN'04)*, Chiang Mai University

RESEARCH INTERESTS:

- Design and Analysis of Algorithms
- Algorithm Complexity and Intractability
- Parallel Algorithms and Architectures
- Graph Theory and Algorithms
- Combinatorics
- Quantum Algorithms and Computation

BOOK:

"Problem Solving in Algorithms : A Research Approach" by Sanpawat Kantabutra, 222 pages, on Amazon.com.

BOOK SECTION:

"A Mobility Model for Studying Wireless Communication" in *Roaming Securely in 802.11 Networks* by Raymond Greenlaw and Paul Goransson, Elsevier Science and Technical Book Group, xxviii + 414 pp.

BOOK CHAPTERS:

1. "Computational Theory and Quantum Complexity", **Sanpawat Kantabutra**, *Springer Lecture Notes in Mathematics Series*, **Vietnam Institute for Advanced Study in Mathematics**, in press.
2. "Introduction to Clustering: Algorithms and Applications" in *Dynamic and Advanced Data Mining for Progressing Technological Development (Editors: Dr. A. B. M. Shawkat Ali and Dr. Yang Xiang)*, Raymond Greenlaw and **Sanpawat Kantabutra**, 30 Pages, IGI Global, USA.

MANUSCRIPTS UNDER PREPARATION FOR JOURNALS:

1. **S. Kantabutra** and S. Vittayakorn, "*NC* Algorithms for the *K*-Centers Related Problems".
2. **S. Kantabutra** and P. Longani, "The Complexity of the Grid Wireless Mobility Model".

JOURNAL PUBLICATIONS:

1. S. Mukdasanit, and **S. Kantabutra**, "Attack and Defense in the Layered Cyber-Security Model and their $(1 \pm \epsilon)$-Approximation Schemes", **Journal of Computer and System Sciences,** 115:54-63 (2021)
2. O. Navrátil, **S. Kantabutra**, S.-L. Peng, "On Phalanx Graph Search Number", **Journal of Internet Technology**, 21(4):1189-1198 (2020)
3. N. Juneam, and **S. Kantabutra**, "Fast and Efficient Parallel Coarsest Refinement", **Fundamenta Informaticae** 150(2):211-220 (2017)
4. N. Juneam, and **S. Kantabutra**, "On the Parallel Complexity of Minimum Sum of Diameters Clustering", **Journal of Internet Technology** 18(4):899-905 (2017)
5. W. Jindaluang, J. Chawachat, V. Chouvatut, J. Fakcharoenphol, and **S. Kantabutra**, "An Improved Approximation Algorithm for the s-t Path Movement Problem," **Chiang Mai Journal of Science** 44(1):279-286 (2017)
6. G. Agnarsson, R. Greenlaw, and **S. Kantabutra**, "The Structure of Rooted Weighted Trees Modeling Layered Cyber-Security Systems", **Acta Cybernetica** 22(4): 735-769 (2016)
7. G. Agnarsson, R. Greenlaw, and **S. Kantabutra**, "On Cyber Attacks and the Maximum-Weight Rooted-Subtree Problem", **Acta Cybernetica** 22(3): 591-612 (2016)
8. P. Longani, **S. Kantabutra**, and N. Juneam, "Multi-Sources Simultaneous Communication in the Wireless Mobility Model is *NP*-complete", **Chiang Mai Journal of Science** 43(5):1205-1221 (2016)
9. **S. Kantabutra**, "Fast Sequential and Parallel Vertex Relabelings of $K_{m,m}$", **International Journal of Foundations of Computer Science** 26(1): 33-50 (2015)

10. R. Greenlaw and **S. Kantabutra**, "Survey of Clustering: Algorithms and Applications", **International Journal of Information Retrieval Research** 3(2): 1-29 (2013)
11. R. Greenlaw, **S. Kantabutra**, and P. Longani, "A Mobility Model for Studying Wireless Communication and the Complexity of Problems in the Model", **Networks** 59(3): 320-330 (2012)
12. G. Agnarsson, R. Greenlaw, and **S. Kantabutra**, "On the Graph Relabeling Problem", **Thai Journal of Mathematics** 8(1): 21-42 (2010)
13. R. Greenlaw, and **S. Kantabutra**, "On the Parallel Complexity of Hierarchical Clustering and CC-complete Problems," **Complexity** 14(2): 18-28 (2008)
14. **S. Kantabutra**, and J. Chawachat, "On Embedding of a Hypercube in a Completely Overlapping Network", **Journal of the Theory of Computing Systems**, 44(1): 105-116 (2009)
15. **S. Kantabutra** and A. L. Couch, "Parallel K-means Clustering Algorithm on NOWs", **NECTEC Technical Journal**, 1(6): 243-248 (2000) (This work has so far been cited internationally 175 times and was cited in the United States Patent 7039638)

CONFERENCE PUBLICATIONS:

1. **S. Kantabutra**, "Adiabatic Quantum Computation for Cyber Attack and Defense Strategies," Springer-Verlag CCIS series, **Communications in Computer and Information Science**, ICS 2022 Workshop on Algorithms, Bioinformatics, and Computation Theory, December 15-17, 2022, Taoyuan, Taiwan.
2. S. Mukdasanit, and **S. Kantabutra**, "Time Complexity of the Edge Replacement Problem in a Cyber Security System," **Proceedings of the 22nd IEEE International Computer Science and Engineering Conference (ICSEC2018)**, November 21-24, 2018, Chiang Mai, Thailand.
3. S. Mukdasanit, and **S. Kantabutra**, "The Complexity of the Infinity Replacement Problem in the Cyber Security Model," **Proceedings of the 21st IEEE International Computer Science and Engineering Conference (ICSEC2017)**, November 15-18, 2017, Bangkok, Thailand.
4. W. Jindaluang, **S. Kantabutra**, and V. Chouvatut, "The Complexity of the Overlay Network Verification and Its Related Problems," **Proceedings of the 19th IEEE International Computer Science and Engineering Conference (ICSEC2014)**, November 23-26, 2015, Chiang Mai, Thailand.
5. W. Jindaluang, V. Chouvatut, and **S. Kantabutra**, "Under-Sampling by Algorithm with Performance Guaranteed for Class-Imbalance Problem," **Proceedings of the 19th IEEE International Computer Science and Engineering Conference (ICSEC2014)**, November 23-26, 2015, Chiang Mai, Thailand.
6. N. Juneam, and **S. Kantabutra**, "On the Parallel Complexity of Minimum Sum of Diameters Clustering," **Proceedings of the 19th IEEE International Computer Science and Engineering Conference (ICSEC2014)**, November 23-26, 2015, Chiang Mai, Thailand (Best Paper Award)
7. P. Longani and **S. Kantabutra**, "Maximum Coverage of Radius-One Sources in the Wireless Communication," **Proceedings of the 18th IEEE International Computer Science and Engineering Conference (ICSEC2014)**, July 30-August 1, 2014, Khon Kaen, Thailand, (Invited Paper).
8. N. Juneam and **S. Kantabutra**, "Time Complexity of Finding Compatible Wellness Groups in the Wellness Profile Model," **Proceedings of the 11th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTICON2014)**, May 14-17, 2014, Nakhon Ratchasima, Thailand.
9. P. Longani and **S. Kantabutra**, "Multi-Sources Simultaneous Communication in the Wireless Mobility Model is *NP*-Complete," **Proceedings of the 2014 International Electrical Engineering Congress (iEECON2014)**, March 19-21, 2014, Pattaya, Thailand, (Invited Paper).
10. **S. Kantabutra**, "Parallel Computation is Not a Panacea," **Proceedings of the 2013 International Electrical Engineering Congress (iEECON2013)**, March 13-15, 2013, Chiang Mai, Thailand, (Invited Paper).

11. W. Techaploog and **S. Kantabutra**, "The Hardness of the Problems in the System Administration Model," **Proceedings of the 2011 International Conference on Information and Electronics Engineering (ICIEE2011)**, May 28-29, 2011, Bangkok, Thailand. (Indexed in Thomson ISI Proceedings)

12. P. Patthamalai and **S. Kantabutra**, "Graph Relabeling with Stacked Labels," **Proceedings of the 7th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTICON2010)**, May 19-21, 2010, Chiang Mai, Thailand. (Acceptance Rate: ~65 % out of 459 Papers, Indexed in IEEE Explore)

13. W. Techaploog and **S. Kantabutra**, "Graph Relabeling with Privileged Edge Labels," **Proceedings of the 6th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTICON2009)**, May 6-9, 2009, Pattaya, Thailand. (Acceptance Rate: ~65 % out of 459 Papers, Indexed in IEEE Explore)

14. **S. Kantabutra** and P. Longani, "The Complexity of the Grid Wireless Mobility Model," **Proceedings of the 9th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2008)**, August 6-8, 2008, Phuket, Thailand. (Acceptance Rate: ~34 % out of 470 Papers, Indexed in EI, INSPEC, or DBLP)

15. G. Agnarsson, R. Greenlaw, and **S. Kantabutra**, "The Complexity of the Evolution of Graph Labelings," **Proceedings of the 9th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2008)**, August 6-8, 2008, Phuket, Thailand. (Acceptance Rate: ~34 % out of 470 Papers, Indexed in EI, INSPEC, or DBLP)

16. G. Agnarsson, R. Greenlaw, and **S. Kantabutra**, "The Graph Relabeling Problem and Its Variants," **Proceedings of the 5th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTICON2008)**, May 14-17, 2008, Krabi, Thailand. (Acceptance Rate: ~56 % out of 480 Papers, Indexed in IEEE Explore)

17. S. Vittayakorn, **S. Kantabutra**, and C. Tanprasert, "The Parallel Complexities of the *K*-Medians Related Problems," **Proceedings of the 5th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTICON2008)**, May 14-17, 2008, Krabi, Thailand. (Acceptance Rate: ~56 % out of 480 Papers, Indexed in IEEE Explore)

18. P. Longani and **S. Kantabutra**, "Time-Optimal User Communication and Source Reachability Algorithms in a Two-Dimensional Grid Wireless Mobility Model," **Proceedings of the 5th IEEE International Conference in Electrical Engineering/Electronics, Computer, Telecommunications, and Information Technology (ECTICON2008)**, May 14-17, 2008, Krabi, Thailand. (Acceptance Rate: ~56 % out of 480 Papers, Indexed in IEEE Explore)

19. **S. Kantabutra**, "The Complexity of Label Relocation Problems on Graphs," **Proceedings of the 8th Asian Symposium on Computer Mathematics (ASCM2007)**, December 15-17, 2007, National University of Singapore, Singapore. (Acceptance Rate: ~55 % out of 65 Papers)

20. W. Yaothanee and **S. Kantabutra,** "Embedding of a Mesh in a Completely Overlapping Network with Latency Hiding," **Proceedings of the 11th National Computer Science and Engineering Conference (NCSEC2007)**, November 19-21, 2007, Bangkok, Thailand.

21. R. Greenlaw and **S. Kantabutra**, "A Mobility Model for Studying Wireless Communication," **Proceedings of the 15th International Conference of Forum for Interdisciplinary Mathematics on Interdisciplinary Mathematical and Statistical Techniques (IMST 2007)**, May 20-23, 2007, Shanghai, P. R. China. (Invited Paper)

22. R. Greenlaw and **S. Kantabutra**, "On the Parallel Complexity of Hierarchical Clustering and CC-complete Problems," **Proceedings of the 4th Annual Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology International Conference (ECTI-CON 2007)**, May 9-12, 2007, Chiang Rai, Thailand.

23. R. Winit, **S. Kantabutra**, and S. Rattanaudomsawat, "Time-Optimal Graph Algorithms for Finding Adjacent and Non-Adjacent Nodes on a Completely Overlapping Network," **Proceedings of the 4th Annual Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology International Conference (ECTI-CON 2007)**, May 9-12, 2007, Chiang Rai, Thailand.

24. S. Rattanaudomsawat and **S. Kantabutra**, "Comparison-Based Sorting Algorithm with Some Constraints," **Proceedings of the 2005 Joint Computer Science and Software Engineering Conference (JCSSE'2005)**, November 17-18, 2005, Chonburi, Thailand.

25. **S. Kantabutra**, W. Jindaluang, and P. Techa-angkoon, "It's Elementary, My Dear Watson: Time-Optimal Sorting Algorithms on a Completely Overlapping Network", **Lecture Notes in Computer Science**, Editor: Yi Pan et al., Vol:3758, Springer-Verlag, 2005. (Acceptance Rate: ~16 % out of ~650 Papers, Impact Factor 0.402)

26. J. Chawachat and **S. Kantabutra**, "On Near-Optimal Embedding of Hypercube in Completely Overlapping Network and Its Scalability", **Proceedings of the First Northeastern Computer Science and Engineering Conference (NECSEC 2005)**, March 31 - April 1, 2005, Khon Khaen, Thailand.

27. **S. Kantabutra** and C. Bunkhumpornpat, "Two Birds With One Stone: A Similarity-Guaranteed Clustering Algorithm and Its Search Tree", **Proceedings of the 2004 IEEE TENCON Conference**, November 21-24, 2004, Chiang Mai, Thailand. (Indexed in IEEE Explore)

28. **S. Kantabutra**, P. Kornpitak, and C. Naramittakapong, "Dynamic Clustering-Based Round-Robin Scheduling Algorithm", **Proceedings of the Third International Symposium on Communications and Information Technology (ISCIT 2003)**, September 03-05, 2003, Hatyai, Songkhla, Thailand.

29. **S. Kantabutra**, C. Naramittakapong, and P. Kornpitak, "Pipelined K-means Algorithms on COWs", **Proceedings of the Third International Symposium on Communications and Information Technology (ISCIT 2003)**, September 03-05, 2003, Hatyai, Songkhla, Thailand.

30. **S. Kantabutra**, "Representation of Ψ-clusters", **Proceedings of the International Conference on Computer Science and Its Applications (ICCSA 2003)**, July 01-02, 2003, San Diego, California, USA.

31. **S. Kantabutra**, "Ψ-clustering Algorithms", **Proceedings of the Second International Symposium on Communications and Information Technology (ISCIT 2002)**, October 23-25, 2002, Pattaya, Chonburi, Thailand.

TECHNICAL REPORTS:

- **S. Kantabutra**, "Approximation Algorithms for the Representative Points Problem of Clusters," Theory of Computation Group, Chiang Mai University, 2006

RESEARCH STUDENT SUPERVISION:

- 9 undergraduate students; among them,
  - Kaewkarn Siriwitayakorn continued her graduate studies at Oxford University in the United Kingdom.
  - Rasika Winit continued her graduate studies at Tufts University in the United States.
  - Sirion Vittayakorn won a research fund from the Thai Scientific Talents Supporting Project of the National Science and Technology Development Agency and is now working on her Ph.D. at Brown University in the United States.
- 9 Master students; among them,
  - Chengchai Naramittakapong won a Ph.D. scholarship from Mahanakorn University of Technology and is now at Kasetsart University.
  - Chumphol Bunkhumpornpat won a Ph.D. government scholarship and is now at Chulalongkorn University.
  - Jakarin Chawachat won a Ph.D. government scholarship and is now at Kasetsart University.
  - Wattana Jindaluang won a Ph.D. government scholarship and is now at Kasetsart University.

- Prapaporn Techa-angkoon won a government scholarship for a Ph.D. study in the United States and is now at Michigan State University.
- Sirion Vittayakorn won a government scholarship for a MS/Ph.D. study in the United States.

- 4 PhD students;
  - Pattama Longani won a Ph.D. grant from the Royal Golden Jubilee PhD program and finished her Ph.D. at Chiang Mai University. She was also the first RGJ PhD student in Chiang Mai University to be bestowed the Excellent Research Award in Computer Science from the Thailand Research Fund.

  - Nopadon Juneam won a Ph.D. grant from the Royal Golden Jubilee PhD program and has just completed his Ph.D. at Chiang Mai University. He won the Best Paper Award from the 19th IEEE International Computer Science and Engineering Conference (ICSEC2014). He was also selected among the competitive pool of international applicants worldwide to attend the School in Recent Advances in Algorithms hosted by St. Petersburg Department of V.A. Steklov Institute of Mathematics of Russian Academy of Sciences.
  - Supachai Mukdasanit received a PhD grant from Chiang Mai Rajaphat University and is the first PhD student in Thailand to publish in the prestigious Journal of Computer System and Sciences.
  - Woratham Khangtragool won a Ph.D. grant from the Royal Golden Jubilee PhD program and is currently a Ph.D. student in the Center of Excellence in Quantum Technology at Faculty of Engineering in Chiang Mai University.

COURSES TAUGHT:

Graduate Level:

- Theory of Computation
- Design and Analysis of Algorithms
- Parallel Algorithms and Architectures
- Mostly NP-Completeness (with Professor Phillip Rogaway)
- Advanced Algorithms
- Artificial Intelligence
- Distributed Systems

Undergraduate Level:

- Pre-mathematics (Chulalongkorn University)
- Mathematics for Applied Digital Intelligence (Chulalongkorn University)
- Quantum Computation
- Discrete Mathematics
- Parallel Computing
- Computer Architecture
- Ethics for Computer Professionals
- Data Communication
- Theory of Computation
- Fundamentals of the Internet and World Wide Web (Armstrong Atlantic State University)

LECTURE NOTES:

- Parallel Computing (in Thai), Department of Computer Science, Faculty of Science, Chiang Mai University
- Quantitative Computer Architecture (in Thai), Department of Computer Science, Faculty of Science, Chiang Mai University
- Design and Analysis of Algorithms (in Thai), Department of Computer Science, Faculty of Science, Chiang Mai University

CONFERENCE KEYNOTE SPEAKERS:

- "Quantum Computation in Artificial Intelligence," The 14th IEEE International Conference on Knowledge and Smart Technology (KST 2022), January 26-29, 2022, Chonburi, Thailand
- "Combinatorial Optimization in Cyber Security," The 2nd International Conference on Mathematical Modeling and Computational Science (ICMMCS 2021), October 29-30, 2021, Pattaya, Thailand
- "Lessons Learned: A Transitional Experience from a Classical Computer Programmer to a Quantum Computer Programmer," The Asia Joint Conference on Computing (AJCC2022), February 2022, Chonburi, Thailand

INVITED TALKS:

- "Research in Quantum Computing", Graduate Seminar, Department of Computer Science, Faculty of Science, February 9, 2024, Kasetsart University, Bangkok, Thailand.
- "Adiabatic Quantum Computation and NP-hardness Problems: Applications in Cyber Security", the 18th Siam Physics Congress (SPC 2023: Quantum Era: Together and Beyond), June 14-16, 2023, the Empress Convention Center, Chiang Mai, Thailand
- "Quantum Computer Theory and Development Perspectives", PhD Seminar, College of Computing, Khon Kaen University, April 22, 2022, Thailand
- "Quantum Computation: Is Thailand ready for it?", <Dev> Mountain Tech Festival, March 20, 2022, Toscana Khaoyai, Nakhon Nayok, Thailand
- "Quantum Artificial Intelligence", Super AI Engineer Season 2 Project, November 8, 2021, Bangkok, Thailand
- "Quantum Algorithms and Computation Research at CMU," Center for Theoretical and Computational Physics, University of Malaya, September 29, 2021, Kuala Lumpur, Malaysia
- "10 Future Skills : Quantum Computing," IMC Institute, February 16, 2021, Bangkok, Thailand
- "Quantum Computation: A Perspective of a Computer Scientist," Department of Physics and Material Sciences, February 26, 2020, Chiang Mai, Thailand
- "Graph Labeling and Cyber Security," Department of Computer Science, Khon Kaen University, March 17, 2017, Khon Kaen, Thailand
- "Parallel Computation : Solution to Every Conceivable Slow Computation?," Department of Computer Science, Khon Kaen University, January 23, 2015, Khon Kaen, Thailand
- "Multi-Sources Simultaneous Communication in the Wireless Mobility Model is NP-complete," *the 2014 International Electrical Engineering Congress (iEECON2014)*, March 19-21, 2014, Pattaya, Thailand
- "Parallel Computation is Not a Panacea*," the 2013 International Electrical Engineering Congress (iEECON2013)*, March 13-15, 2013, Chiang Mai, Thailand
- "Graph Relabelings with Stacked Labels", Department of Computer Engineering, Faculty of Engineering, *Chiang Mai University*, *Thailand*, July 7, 2010
- "The Complexity of the Grid Wireless Mobility Model", Department of Computer Engineering, Faculty of Engineering, *Chiang Mai University*, *Thailand*, September 10, 2008
- "On the Parallel Complexity of Hierarchical Clustering and CC-complete Problems" in *the 18th National Workshop on Uninet Network and Computer Applications*, Chiang Mai University, *Thailand*, January 9-12, 2008
- "Computer Science and Research Areas in Computer Science", Department of Computer Science, School of Information Technology, *Mae Fah Luang University*, *Thailand*, June 18, 2007
- "Approximation Algorithms for the Representative Points Problem of Clusters," Department of Computer Science and Information Engineering, *National Chung Cheng University*, *Taiwan*, *R.O.C.*, September, 2006
- "On the Parallel Complexity of Hierarchical Clustering and CC-complete Problems," Department of Computer Science and Information Engineering, *National Dong Hwa University*, *Taiwan*, *R.O.C.*, September, 2006
- "Approximation Algorithms for the Representative Points Problem of Clusters," Department of Computer Science and Information Engineering, *Shih Hsin University*, *Taiwan*, *R.O.C.*, September, 2006
- "Cluster Computing as a Tool in Theoretical Computer Science", National Workshop on Cluster Computing 2003 (NWCC2003), *Asian Institute of Technology*, *Bangkok*, *Thailand*, March 10, 2003

INVITED VISITING PROFESSORSHIP/LECTURESHIP:

- School of Integrated Innovation, Chulalongkorn University
  - ❖ Pre-mathematics, 7 - 31 July 2020
  - ❖ Mathematics for Applied Digital Intelligence, Fall 2020, 10 August – 23 November 2020
- Department of Computer Science, School of Computing, Armstrong Atlantic State University, Savannah, Georgia, USA, March – May 2007.
  - ❖ Teaching Two Courses: Theory of Computation and Introduction to the Internet and World Wide Web
  - ❖ Research: Mobility Model in Wireless Network and Complexity of the *K*-Medians Problem

RESEARCH FUNDS:

- Center of Excellence in Quantum Technology, 1,750,000 bahts, Chiang Mai University, 2023-2024
- Center of Excellence in Quantum Technology, 1,000,000 bahts, Chiang Mai University, 2021-2022
- Royal Golden Jubilee Ph.D. Scholarship, S. Kantabutra, ~2,000,000 bahts, National Research Council of Thailand, 2021-2024
- Research Career Development Grant (เมธีวิจัย สกว.), S. Kantabutra, 650,000 bahts, Thailand Research Fund, 2017-2020
- Research Career Development Grant (เมธีวิจัย สกว.), S. Kantabutra, 620,000 bahts, Thailand Research Fund, 2011-2014
- Royal Golden Jubilee Ph.D. Scholarship, S. Kantabutra, ~2,000,000 bahts, Thailand Research Fund, October 2009-October 2012
- Royal Golden Jubilee Ph.D. Scholarship, S. Kantabutra, ~2,000,000 bahts, Thailand Research Fund, October 2008-October 2011
- "The Parallel Complexity of the Label Relocation Problems on Graphs", S. Kantabutra, 27,000 bahts, Faculty of Science Research Fund, Chiang Mai University, 2008.
- "The Parallel Complexity of Medians Replacement in *K*-Medians," with S. Vittayakorn, 65,000 bahts, Thai Scientific Talents Supporting Project, National Science and Technology Development Agency, 2007.
- "Overlay Networks Verification and Its Complexity", with W. Jindaluang, 40,000 bahts, Faculty of Science Research Fund, Chiang Mai University, 2006.

LANGUAGES: Equally Fluent in American English and Thai languages

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