



# Vara Varavithya

Associate Professor, Head of Electrical Engineering Department

Faculty of Engineering

King Mongkut's University of Technology North Bangkok

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## Profile

Member of the faculty at the Department of Electrical Engineering, Faculty of Engineering King Mongkut's Institute of Technology North Bangkok.

## Experience

### **Head of Electrical Engineering Department, KMUTNB -- 2006-present**

Organizing academic operations of the electrical engineering department. The EE department is the largest department in the KMUTNB. A team of 47 full-time faculty members supports approximately 1,000 undergraduate students and 200 graduate students. The department grants degrees in both electrical engineering and computer engineering.

### **Associate Professor in Computer Engineering, KMUTNB -- 2005-present**

Lecturing and supervising research in the field of computer engineering at the Department of Electrical Engineering, Faculty of Engineering. Direct the High Performance Computing Research Group at the KMITNB. Pursue the development of grid enable applications which serves industry and research community in Thailand.

### **Associate Dean in Research and Information, KMITNB -- 2002-2006**

Promoting and supporting research activities to the members of Faculty of Engineering, King Mongkut's Institute of Technology North Bangkok. Responsible for the Faculty's information systems and computer-based information infrastructure. Procure third generation of the Faculty's internal network.

### **Assistant Professor in Computer Engineering, KMITNB -- 2002-2005**

Lecturing and conducting research in the field of computer engineering at the Department of Electrical Engineering, Faculty of Engineering. Direct the High Performance Computing Research Group at the KMITNB. Co-found the Thai National Grid Project. Internationally participated in the advanced research in networking and grid computing.

### **Assistant Dean in Information Technology, KMITNB -- 1998-2002**

Establishing Intranet System in the Faculty of Engineering and introducing Human Resource Management Information Systems and Examination Management System.



### **Lecturer in Computer Engineering, KMITNB -- 1998-2002**

Lecturing in the field of computer engineering at the Department of Electrical Engineering, Faculty of Engineering. Responsible for broad subjects which include computer programming, operating systems, computer organization, real-time systems, computer architecture, performance analysis of computer systems.

### **Graduate Teaching Assistant, Iowa State University -- Spring 1998**

Teaching Assistant in CprE 301 Computer Systems Design and Interfacing

### **Graduate Teaching Assistant, Iowa State University -- Fall 1997**

Teaching Assistant in CprE 305 Computer Architecture and Organization

### **Graduate Research Assistant, Iowa State University -- 1996-1997**

Advanced Computer Architecture Research Group: Participated in research on multicast routing algorithms for parallel architectures. Responsibilities include the development of interconnection network simulators.

### **Graduate Assistant, Iowa State University -- 1996-1997**

Office of International Students and Scholars, created and maintained the OISS web site and relational database.

### **Lecturer, KMITNB -- 1991-1992**

Lecturing in the Department of Electrical Engineering, Faculty of Engineering. Responsible for fundamental subjects in electrical engineering field which include electrical circuits, control engineering, energy conversions, etc.

### **National Petrochemical Corporation, Rayong, Thailand -- 1989-1991**

Involved in the commissioning process of the petrochemical plant complex.

## **Education**

Iowa State University, Ames, Iowa, USA -- Ph.D. in Computer Engineering (Research Excellence Award), 1998

Iowa State University, Ames, Iowa, USA -- M.S. in Computer Engineering, 1994

King Mongkut's Institute of Technology North Bangkok -- B. Eng. in Electrical Engineering, 1989

## **Research Interest**

High Performance Computing, Grid Computing, Performance of Computer Systems, Software Engineering, and Implementing Enterprise Systems.

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## Teaching Experiences

Introduction to Computers, Computer Programming, Computer Organization, Advanced Computer Architecture, Software Engineering, Real-time Systems, Fault Tolerant Systems, Parallel and Distributed Computing, Data Communication and Networking, Computer System Performance Evaluation, and Operating Systems.

## Professional Activities

General Secretary: ECTI-CON 2009

Vice President: Thailand Embedded System Association, 2007

General Co-Chair: National Computer Science and Engineering Conference, 2008

Second Generation UniNet Procurement Committee: Inter University Network, Office of Higher Commission

Software Industry Incubation Center Subcommittee: Software Industry Promotion Agency

Information Technology Advisor: Council of Engineer

Honorable Advisor: Software Industry Promotion Agency

Software Process Improvement (SPISE): Participation Advisor, Software Park Thailand, NSTDA

Executive Board Member: Thai National Grid Project

Co-Chair: Thailand Grid Computing Conference (TGCC) 2008, 2007, 2006, 2005

Steering Committee Member: Thai National Grid Project

Executive Board Member: Lampang Inter-Tech College

Program Committee: National Computer Science and Engineering Conference (NCSEC)

Program Committee: Annual National Symposium on Computational Science and Engineering (ANSCSE)

Participate in organizing several student's robot activities in Thailand

Co-chair: Thailand Grid and Cluster Computing Conference 2004 and 2005.

Referee: IEEE Transaction on Computers, IEEE Transaction on Parallel and Distributed Systems, Computer Journal

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## Honors and Awards

Graduate with Honors, King Mongkut's Institute of Technology North Bangkok, Thailand, 1989

Research Excellence Award, Iowa State University, 1998

KMITNB's Innovation Award (Software), 2000

EECON-23's Best Paper Award, 2000

## Society Memberships

IEEE Senior Member

## Publications

### Referee Conference Publications

1. Kosin Keawnuna, Wittaya Konghaped, Supakit Prueksaaron, Vara Varavithya, and Sornthep Vannarat, "Performance Comparison of OS-Level Virtualization and Para-Virtualization," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2008.
2. Anupong Bangchongkarn, Wittaya Konghaped, Supakit Prueksaaron, Vara Varavithya, and Sornthep Vannarat, "Preliminary Study of Xen Live Migration: Effects of Problem Size in HPC Applications," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2008.
3. Polrid Pananusorn and Vara Varavithya, "Improvement of MANET Routing Protocol using Congestion Avoidance for Video Streaming," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2008.
4. Yootapong Chaiyorost and Vara Varavithya, "3-Party Authorization for Medical Grid in Medical Image Area," in the Proceeding of the Thai Grid and Cluster Computing Conference (TGCC), August 2008.
5. Wittaya Konghaped, Supakit Prueksaaron, Vara Varavithya, and Sornthep Vannarat, "Performance Evaluation of Intel Virtualization Technology on Standard Benchmarks," in the proceeding of the twelfth Annual National Symposium on Computational Science and Engineering (ANSCSE 12), 2008.
6. Kamol Julkiwattananukul and Vara Varavithya, "A Case Study of Grid Enable Finite Element Calculation Services: Electromagnetic Calculations," International Workshop on Advanced Computing and Application (ACOMP), pp. 149-156, 2008.
7. Supakit Prueksaaron, Vara Varavithya, and Sornthep Vannarat, "Performance Experiments of the Xen Virtualization on a Set of Selected Benchmarks for Enterprise



Deployments," International Workshop on Advanced Computing and Application (ACOMP), pp. 295-302, 2008.

8. Supachai Kunasantiworakul, Kamol Julkiwattananukul, and Vara Varavithya, "Grid-enable iMOOSE Simulation Front-end for Switched Reluctance Motors," Thailand Grid and Cluster Computing Conference (TGCC), 2007.

9. Supakit Prueksaaron, Vara Varavithya, and Sornthep Vannarat, "Implementation of Virtualization Cluster and Grid based on Xen, ROCKS, and ThaiGrid Roll," Thailand Grid and Cluster Computing Conference (TGCC), 2007.

10. Sumate Limpurogenaong, Vara Varavithya, and Kanokvate Tangpiolrat, "SRM Analysis using Finite Element Method: iMOOSE Simulation Platform," in the proceeding of the National Electrical Engineering Conference (EECON 30), 2007.

11. Putchong Uthayopas and Vara Varavithya, "Architecture and Software Designs for the Thai National Grid Infrastructure," in the proceeding of the *National Computer Sciences and Engineering Conference (NCSEC)*, 2006.

12. Polrid Pananusorn and Vara Varavithya, "Performance Comparisons of MANET Routing Protocols for Multiple Sources Video Streaming Applications," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2006.

13. Kamol Jutiwattananukul and Vara Varavithya, "Enabling Grid Computing Capabilities in Engineering Applications: Finite Element Calculations," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2006.

14. Vara Varavithya and Putchong Uthayopas, "Design Considerations in Building Terascale Cluster Computing Systems," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2005.

15. Wisan Watcharinporn and Vara Varavithya, "Improvement of a Congestion Control Algorithm in Mobile Ad-hoc Networks," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2005.

16. Suriya Urueakoran and Vara Varavithya, "Small Community Access Right Delegation Protocol for Grid Enable Infrastructure," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2005.

17. Polrid Pananusorn and Vara Varavithya, "A Real World Performance Comparison of Routing Protocols in MANET," in the proceeding of the *National Electrical Engineering Conference, EECON-28*, 2005.

18. Supada Laosooksathit, Vara Varavithya, and Nachol Chaiyaratana, "Ant Colony with Event Flooding in Sensor Networks: Forest Fire Detection," in the proceeding of the *National Electrical Engineering Conference, EECON 28*, 2005.

19. Suphat Pongdech and Vara Varavithya, "A Fast Response Congestion Control Technique for Multicast Communication," in the proceeding of the *National Electrical Engineering Conference, EECON 27*, 2004.



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20. Kotchakorn Maksuriwong, Vara Varavithya, and Nachol Chaiyaratana, "[Wireless LAN Access Point Placement using Multiobjective Genetic Algorithm](#)," in the proceeding of the *IEEE International Conference on Systems, Man & Cybernetics*, October, 2003.
21. Chumpol Ngamphiw, Vara Varavithya, and Srawut Kleesuwan, "[Parallel Finite Element Problem Solving using High Performance Computation Libraries](#)," in the proceeding of the *Seventh Annual National Symposium on Computational Science and Engineering*, Bangkok, 2003.
22. Supakit Prueksaaron and Vara Varavithya, "[Basic Computation Service Framework on Grid for High Performance Computing](#)," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2002.
23. Panya Thanyaprasertkul and Vara Varavithya, "[Taupoon: A Fast Response Congestion Avoidance Strategy for TCP](#)," in the proceeding of the *National Computer Science and Engineering Conference (NCSEC)*, 2002.
24. Kotchakorn Maksuriwong, Vara Varavithya, and Nachol Chaiyaratana, "IEEE 802.11 Wireless LAN Cell Planning using Genetic Algorithm," in the proceeding of the *National Electrical Engineering Conference, EECON 25*, 2002.
25. Nattavut Keerativuttitumrong, Nachol Chaiyaratana, and Vara Varavithya, "Parallel Implementation of Multi-objective Co-operative Co-evolutionary Genetic Algorithm," in the proceeding of the *National Electrical Engineering Conference, EECON 25*, 2002.
26. Nattavut Keerativuttitumrong, Nachol Chaiyaratana, and Vara Varavithya, "[Multi-objective Co-operative Co-evolutionary Genetic Algorithm](#)," in the proceeding of the *Seventh International Conference on Parallel Problem Solving from Nature, PPSN VII*, Granada, Spain, September, 2002.
27. Jirasak Lapanalarploy and Vara Varavithya, "[Process-Oriented Simulation of Distributed WWW Servers using CSIM](#)," in the proceeding of the *National Electrical Engineering Conference, EECON-24*, Bangkok, 2001.
28. Vara Varavithya and Thongchai Thepuatrakul, "[Ethernet-Based Interconnections for Massively Parallel Clusters](#)," in the proceeding of the *First South East Asia Conference on High Performance Computing*, Kasetsart University, Bangkok, 2001.
29. Vara Varavithya and Putchong Uthayopas, "[ThaiGrid: Architecture and Overview](#)," in the proceeding of the *First South East Asia Conference on High Performance Computing*, Kasetsart University, Bangkok, 2001.
30. Jirasak Lapanalarploy and Vara Varavithya "[Geographically Distributed Web Servers under Limited Network Bandwidth](#)," in the proceeding of the *Fifth Annual National Symposium on Computational Science and Engineering*, pp. 417-426, Bangkok, 2001.
31. Vara Varavithya and Putchong Uthayopas "[ThaiGrid: Preliminary Studies on Thai's High Performance Computing Infrastructure](#)," in the proceeding of the *Fifth Annual National Symposium on Computational Science and Engineering*, pp. 436-443, Bangkok, 2001.



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32. Tanarat Kunchone and Vara Varavithya, "[The Development of Mosaic Pictures using Discrete Cosine Transform](#)," in the proceeding of the *National Electrical Engineering Conference, EECON-23*, Chiangmai, 2000.
33. Vara Varavithya and Thongchai Thepuatrakul, "[A High Bandwidth Ethernet Topology for Large Scale Clusters](#)," in the proceeding of the *National Electrical Engineering Conference, EECON-23*, Chiangmai, 2000. (Best Paper Award in Computer Engineering)
34. Vara Varavithya, Pitsanu Lousangfa, and Chumpol Ngamphiw, "[Effects of Network Configurations on Performance of Beowulf-class Clusters](#)," in the proceeding of the *National Electrical Engineering Conference, EECON-23*, Chiangmai, 2000.
35. V. Varavithya and P. Mohapatra, "[Tree-Based Multicasting on Wormhole Routed Multistage Interconnection Networks](#)," in the proceeding of the 26th *International Conference on Parallel Processing (ICPP)*, pp. 203-206, Bloomingdale, IL, August 1997.
36. P. Mohapatra and V. Varavithya, "[A Hardware Multicast Routing Algorithm for Two - Dimensional Meshes](#)," in the proceeding of the *Eighth IEEE Symposium on Parallel and Distributed Processing*, pp. 198-205, News Orleans, October 1996.
37. V. Varavithya and P. Mohapatra, "[A Multicast Routing Algorithm for Wormhole Routed Two - Dimensional Meshes](#)," in the proceeding of the *Fifth Midwest Electrotechnology Conference*, Ames, IA, 1996.
38. V. Varavithya, J. Upadhyay, and P. Mohapatra, "[An Efficient Fault-Tolerant Routing Scheme for Two - Dimensional Meshes](#)," in the proceeding of the *International Conference of High Performance Computing*, New Delhi, India, pp. 773-778, December 1995.
39. J. Upadhyay, V. Varavithya, and P. Mohapatra, "[Routing Algorithms for Torus Networks](#)," in the proceeding of the *International Conference of High Performance Computing*, New Delhi, India, pp. 743-748, December 1995.
40. J. Upadhyay, V. Varavithya, and P. Mohapatra, "[Efficient and Balanced Adaptive Routing in Two Dimensional Meshes](#)," in the proceeding of the *IEEE International Symposium on High Performance Computer Architecture*, Raleigh, North Carolina, pp. 112-121, January 1995.

### Journal Publications

1. V. Varavithya and P. Mohapatra, "[Tree-Based Multicasting on Wormhole Routed Multistage Interconnection Networks](#)," in the *IEEE Transactions on Parallel and Distributed Systems*, pp. 1159-1178, November 1999.
2. J. Upadhyay, V. Varavithya, and P. Mohapatra, "[A Traffic-Balanced Adaptive Wormhole Routing Scheme for Two Dimensional Meshes](#)," in the *IEEE Transaction on Computers*, vol. 46, no. 2, February, 1997.
3. Vara Varavithya and Putchong Uthayopas, "[ThaiGrid: Architecture and Overview](#)," in the *NECTEC Technical Journal*, vol.~II, no.~9, pp.~219--224, Nov-Feb 2001.



4. Vara Varavithya and Thongchai Thepuatrakul, "[Ethernet-Based Interconnections for Massively Parallel Clusters](#)," in the *NECTEC Technical Journal*, , vol.-II, no.~9, pp.~205--214, Nov-Feb 2001.

5. Nattavut Keerativuttiumrong, Nachol Chaiyaratana and Vara Varavithya, "[Multi-objective Co-operative Co-evolutionary Genetic Algorithm](#)," in the *Lecture Notes in Computer Sciences*, Springer-Verlag, pp.~288--297, no.~2439, 2002.

## **Enterprise Information System Designs**

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Maintenance Service Management, Sharp Thepnakorn Co. Ltd., Bangkok -- 2000

Sale Force Management, Omron Electronic Co. Ltd., Bangkok, 2000

Service Management, M-Water Co. Ltd, Bangkok, 2001

Knowledge Management, Kantana Group Public Co. Ltd., 2002

Call-Center Information System for Brokering Services, Seamico Security Public Co. Ltd., 2004

Workflow Sale Force Management, Health Supplement Co. Ltd., 2005

Promotion Management System, Com 7 Co. Ltd., 2005

Direct Marketing Enterprise System, TV Direct Co. Ltd., 2005

Event Organizer Information System, AV System Co. Ltd., 2006

## **Certification**

CCDA: Certificate Cisco Design Associate, 2002

## **Skills**

Facilitate group meeting, implementing software engineering process to the enterprise systems, requirement analysis, software architecture design, object oriented design, implement patterns into database design, C, C++, Java, HTML, MPI, trouble shooting in enterprise IS environment, queuing model, discrete events simulation, CPR.

## **Consulting**

Information Technology Consultant, Lampang Business Commerce School, Lampang

Computer Consultant, Inter System Consultant Co. Ltd., Bangkok



Software Architect Consultant, AsiaBiz Networks Co. Ltd., Bangkok

Computer Consultant, Land Development Department, Bangkok

## **Referrals**

Available upon request.

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