

## Supannika (Sue) Koolmanojwong

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**CITIZEN:** United States

### EDUCATION

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- 2013 **Certified Scrum Master**, Scrum Alliance  
2012 **Certified Scrum Product Owner**, Scrum Alliance  
November 2010 **Ph.D. in Computer Science**, University of Southern California  
Dissertation: The Incremental Commitment Model Process Patterns for Rapid-Fielding Projects  
Advisor: Professor Barry Boehm  
December 2008 **M.S. in Computer Science**, University of Southern California  
December 2000 **M.S. in Information Technology**, Assumption University, Thailand  
Thesis: An Analysis and Design of an Intelligent Electronic Marketplace for Tourism Industry in Thailand  
Advisor: Associate Professor Pratit Santiprabhob  
June 1997 **B.S. in Information Technology**, Assumption University, Thailand

### TEACHING EXPERIENCE

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- Spring 2011 **CSCI 577ab: Software Engineering, University of Southern California**  
Fall 2011 **Lecturer** – Teaching real-client Software Engineering course sequence, which forms the core of the Master of Science in Computer Science with specialization in Software Engineering. Software  
Spring 2012 the Master of Science in Computer Science with specialization in Software Engineering. Software  
Fall 2012 Engineering I focuses on software plans, processes, requirements and architectures. Software  
Spring 2013 Engineering II focuses on software product creation, integration, test and maintenance with an  
Fall 2013 emphasis on quality software production.  
Spring 2014  
  
Fall 2012 **CSCI 477ab: Design and Construction of Large Software Systems , University of Southern**  
Spring 2013 **California**  
Fall 2013 **Lecturer** – Teaching two course sequence real-client capstone classes for Computer Science  
Spring 2014 students in the undergraduate level. In csci477a, the emphasis is on the requirements  
development and design of the system; in csci477b the emphasis is on implementation, testing,  
and maintenance.  
  
Spring 2013 **CSCI 511: Personal Software Process, University of Southern California**  
Spring 2014 **Lecturer** - Teaching software development process by using various Agile practices. Students will  
study various Agile concepts such as Scrum, Extreme Programming, Lean, and Kanban. With  
several hands-on exercises, students will learn how to properly apply Agile techniques into their  
software development projects.  
  
Fall 2011 **CSCI 510: Software Management and Economics, University of Southern California**  
Fall 2012 **Lecturer** – Taught fundamental principles underlying software management and economics. The  
Fall 2013 course objectives are to analyze management situations via case studies; to analyze software  
cost/schedule tradeoff issues via software cost estimation tools and microeconomic techniques;  
and to apply the principles and techniques to practical situations.  
  
Spring 2012 **CSCI 599: Service Science, University of Southern California**  
**Lecturer** – Taught service science management and engineering. This subject covered customer-  
centric service business strategy, cloud-computing service architecture, service-based system and  
software process engineering, and innovations in web services.  
  
Fall 2011 **CSCI 561: Foundations of Artificial Intelligence, University of Southern California**  
Spring 2012 **Lecturer** - Taught artificial intelligence from an intelligent systems perspective. The course  
talked about algorithms and approaches behind intelligent systems. Students learned how to

build systems that can interact intelligently with their environment, including those that plan, learn, and reason about the world

Fall 2006 - **CSCI 577ab: Software Engineering, University of Southern California**  
Fall 2009 **Teaching Assistant** - Assisted in teaching and mentoring graduate students in Software Engineering class. Graded software project artifacts. Coordinated with USC outreach program and USC neighborhood organizations in soliciting real clients for software engineering class.

2000 - 2004 **Senior Capstone Projects, Assumption University**  
**Advisor** -Advised and mentored groups of students in their senior capstone software development projects.

2002 - 2004 **Object-Oriented System Analysis and Design, Assumption University**  
**Lecturer** - Taught foundations of software engineering principles focusing on analysis and design phases by using object-oriented paradigm using Unified Modeling Language.

2001 **Human Computer Interaction, Assumption University**  
**Lecturer** - Taught foundations and best practices in human computer interaction (HCI), computer supported cooperative work (CSCW), and software user interface design.

1999 - 2000 **Microcomputer Application, Assumption University**  
**Lecturer** - Taught non-computer science students in basic computer and internet skills and general desktop applications such as website development and office suite

1997 - 1999 **Introduction to Computer Programming, Assumption University**  
**Lecturer** - Taught an introductory course for computer science freshmen in computer programming languages such as C, C++, and Java.

## **RESEARCH EXPERIENCE**

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2005 - current **Center for Systems and Software Engineering, University of Southern California**  
Performing research in

- Big Data, Cloud Computing, Service Science
- Systems and Software Engineering Education and Training
- Systems and Software Affordability, Technical Debt, Systems Flexibility, Expedited Systems Engineering, Systems Tradespace
- Software Process Modeling, Software Process Improvement, Software Process Quality Assurance
- Agile Software Development, Lean Software Development, Scrum, Kanban, Expedited Process
- Feasibility, Risk, and Evidence-Based Analysis, Cost Estimation
- The Incremental Commitment Spiral Model and Model-Based Software Engineering

2002 - 2004 **Autonomous Systems Research Laboratory, Assumption University**  
Worked on agent-based systems by concentrating on multi-agent coordination in competitive and heterogeneous environments. Used game theory and data mining techniques to enhance agent's ability to detect lying agents.

1997 - 2002 **Software Technology Laboratory, Assumption University**  
Worked on applying fuzzy systems to identify a smart match for a demand-chain management a tourism electronic-marketplace system. Fuzzy relational products are used in grading data to find qualified alternatives to improve personalized search results.

## **PROFESSIONAL EXPERIENCE**

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2011 - 2012 **RT-34 Expedited Systems Engineering for Rapid Capability and Urgent Needs**  
**Collaborator** - Worked on defining and identifying expedited systems engineering processes and practices and outlining how to ensure that capabilities that result from urgent needs can be more

effective, efficient, and longer lasting in the field.

- 2012 **RT-35 Agile-Lean Software Engineering (ALSE) Evaluating Kanban in Systems Engineering Participant** - Assisted in identifying how to integrate kanban-like constructs at each systems engineering level from an individual project through the complete capabilities portfolio for multi-level systems engineering in large enterprises.
- 2011 **RT-19 Pilot Program on Scaling Up and Sustaining Effective SE Capstone Practices Participant** - Investigated on how to address systems engineering competencies in capstone project and how to adopt, adapt, scale up, and institutionalize the core elements of successful systems engineering capstone projects.
- 2010 **IBM Rational Software Software Engineering Intern** - Worked on developing Measured Capability Improvement Framework – Capability Maturity Model Integration (MCIF-CMMI) project by performing gap analysis between CMMI 1.2 and IBM Practice Libraries and developing MCIF-CMMI solution.
- 2008 **IBM Rational Software Software Engineering Intern** - Researched and authored software engineering best practices content and supplementary content for IBM Rational Method Composer tool.
- 2002 **Activity-Base Costing for Thailand Universal Health Care System Analyst** - Worked on analyzing processes and costs for each health care unit and identifying potential business streamlining in order to reduce costs for Thailand Universal Health Care.
- 2001 **IT Master Plan for Bangkok Metropolitan Administration Council Project Coordinator** - Developed Information Technology Master Plan for Bangkok Metropolitan Administration Council. The plan indicated short term and long term goals on how to scale up IT infrastructure to support fast growing IT needs.
- 2000 **IT Master Plan for Rajabhat Institute of Suan Sunandha System Analyst** - Developed Information Technology Master Plan for a medium-sized university by focusing on how to revamp the legacy systems, streamline the information technology business processes, and prepare IT infrastructure for the possible university expansion.
- 2000 **Dynamic Web for Industrial Estate Authority of Thailand System Analyst** - Performed system analysis and design for dynamic web portal for Industrial Estate Authority of Thailand.
- 2000 **10 Years Anniversary Free Training of Science and Technology Faculty Project Coordinator/Instructor** - Taught website development and object analysis and design courses to public on the occasion of celebrating 10 years anniversary of Faculty of Science and Technology, Assumption University.
- 2002 - 2004 **Faculty of Science and Technology, Assumption University External Affairs Coordinator** - Created and maintained relationships with the faculty's affiliates including media relations, public relations, outreach and government relations. Responsible for organizing and execution of meetings and events for both internal and external to the faculty. Developed and maintained faculty website and its content.
- 2000 - 2004 **AuTechNote, Assumption University Editor and Contributing Writer** - Gathered information, reported and circulated information about technical news and the faculty events.

## ACTIVITIES

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- 2004 - present **IEEE Aerospace Conference**, Database Manager, Webmaster, Program Committee, and Reviewer
- 2010 - present **International Conference on Systems and Software Process (ICSSP)**, Program Committee, Reviewer and Local Arrangement Chair (2013)
- 2012 - present **Conference on Software Engineering Education and Training (CSEE&T)**, Program Committee and Local Arrangement Chair (2013), Publication Chair (2014)
- 2012 - present **Conference of Systems Engineering Research (CSER)**, Reviewer
- 2013 - present **Agile 2013**, Program Committee and Reviewer
- 2005 - present **CSSE USC Annual Research Review**, Organizing Committee
- 2005 - present **International Forum on COCOMO® and Systems/Software Cost Modeling**, Organizing Committee

## AWARDS

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- 2012 **Best Paper - Application Award**, "Principles for Successful Systems Engineering", CSER 2012
- 2010 **Best Paper Award** - Decision Technologies and Service Sciences Track "Analysis of Stakeholder/Value Dependency Patterns and Process Implications: A Controlled Experiment", HICSS 43
- 2010 **Best Teaching Assistance Award**, Computer Science Department, University of Southern California
- 2000 **Dean's Award**, Excellent Academic Performance, Graduate School of Science and Technology, Assumption University
- 2000 **Best Alumnus** in Social Contribution, Faculty of Science and Technology, Assumption University
- 1992 **Best Student** in Leadership Performance, Stree Smutprakarn School and National Youth Bureau
- 1990 **Best Student** in Social Contribution, Saint Joseph Tippawan School and National Youth Bureau

## PUBLICATIONS

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### Book & Book chapter

- [1] Barry Boehm, JoAnn Lane, **Supannika Koolmanojwong**, and Richard Turner, "Embracing the Spiral Model - Creating Systems With The Incremental Commitment Spiral Model" Addison-Wesley Professional; 1<sup>st</sup> Edition (To be published in 2014)
- [2] **Supannika Koolmanojwong** and Barry Boehm, "The Incremental Commitment Spiral Model for Service-Intensive Projects" In Agile and Lean Service-Oriented Development, IGI Global, 1<sup>st</sup> Edition (2012)
- [3] Barry Boehm, JoAnn Lane, **Supannika Koolmanojwong**, and Richard Turner, "Architected Agile Solutions for Software-Reliant Systems" In Agile Software Development Current Research and Future Directions, Springer; 1<sup>st</sup> Edition (2010)

### Publications and technical reports:

- [1] **Supannika Koolmanojwong**, "Top-10 Risks in Real-Client Software Engineering Class Projects", Invited Talk, CSEE&T, Klagenfurt, Austria
- [2] Barry Boehm and **Supannika Koolmanojwong**, "Combining Software Engineering Education and Empirical Research via Instrumented Real-Client Team Project Courses", CSEE&T 2014, Klagenfurt, Austria
- [3] Rachchabhorn Wongsaroj, Jo Ann Lane, **Supannika Koolmanojwong**, and Barry Boehm, "Can COCOMO II Estimate Big Data Project?", COCOMO Forum 2013, USA
- [4] **Supannika Koolmanojwong**, Jo Ann Lane, Rachchabhorn Wongsaroj, Thammanoon Kawinfruangfukul, and Barry Boehm, "Top Enablers and Inhibitors of Affordable Systems", COCOMO Forum 2013, USA
- [5] Jo Ann Lane, **Supannika Koolmanojwong** and Barry Boehm, "Affordable Systems: Balancing the Capability, Schedule, Flexibility, and Technical Debt Tradespace" INCOSE 2013, Philadelphia, PA, USA
- [6] **Supannika Koolmanojwong** and Jo Ann Lane, "Enablers and Inhibitors of Expediting Systems Engineering", CSER 2013, Atlanta, Georgia, USA
- [7] Thammanoon Kawinfruangfukul, **Supannika Koolmanojwong**, Nupul Kukreja, "Representing Advances in Systems Engineering by Using an Electronic Process Guide", CSER 2013, Atlanta, Georgia, USA
- [8] Barry Boehm, JoAnn Lane, **Supannika Koolmanojwong**, "An Orthogonal Framework for Improving Life Cycle Affordability" CSER 2013, Atlanta, Georgia, USA

- [9] Barry Boehm, JoAnn Lane, **Supannika Koolmanojwong**, Richard Turner, "An Evidence-Based Systems Engineering (SE) Data Item Description", CSER 2013, Atlanta, Georgia, USA
- [10] Barry Boehm, Jo Ann Lane, **Supannika Koolmanojwong**, and Richard Turner, "Principles for Successful Systems Engineering", CSER 2012, St. Louis, Missouri, USA
- [11] Pongtip Aroonvatanaporn, **Supannika Koolmanojwong**, and Barry Boehm, "COTIPMO: A CONstructive Team Improvement Process Model", In Proceedings of International Conference on Systems and Software Process 2012, Zürich, Switzerland
- [12] **Supannika Koolmanojwong**, Barry Boehm, "Educating Software Engineers to Become Systems Engineers", Proceedings of the 2011 24th Conference on Software Engineering Education and Training - CSEET, Waikiki, Hawaii, USA
- [13] **Supannika Koolmanojwong** and Barry Boehm, "The Incremental Commitment Model Process Patterns for Rapid-Fielding Projects," In Proceedings of International Conference on Software Process 2010, Paderborn, Germany
- [14] Di Wu, Qi Li, Mei He, Barry Boehm, Ye Yang, and **Supannika Koolmanojwong**, "Analysis of Stakeholder/Value Dependency Patterns and Process Implications: A Controlled Experiment", HICSS 43, Hawaii, USA
- [15] Ali Afzal Malik, **Supannika Koolmanojwong**, Barry Boehm, "An Empirical Study of Requirements-to-Code Elaboration Factors," 24th International Forum on COCOMO and Systems/Software Cost Modeling, November 2009, Cambridge, Massachusetts, USA
- [16] **Supannika Koolmanojwong** and Barry Boehm, "Using Software Project Courses to Integrate Education and Research: An Experience Report," 22nd IEEE-CS Conference on Software Engineering Education and Training (CSEET) 2009, Hyderabad, India
- [17] Barry Boehm, Jo Ann Lane, **Supannika Koolmanojwong**, "A Risk-Driven Process Decision Table to Guide System Development Rigor," In the Proceedings of The International Council on Systems Engineering, Singapore
- [18] Xu Bai, Liguang Huang, **Supannika Koolmanojwong**, "Incremental Process Modeling through Stakeholder-Based Hybrid Process Simulation" In Proceedings of International Conference on Software Process 2009, Vancouver, Canada
- [19] Da Yang, Di Wu, **Supannika Koolmanojwong**, A. Winsor Brown, Barry Boehm, "WikiWinWin: A Wiki Based System for Collaborative Requirements Negotiation," In the Proceedings of the 41st Annual Hawaii International Conference on System Sciences, 2008, p. 24, Hawaii, USA
- [20] Monvarath Phongpaibul, **Supannika Koolmanojwong**, Alexander Lam, Barry Boehm, "Comparative Experiences with Electronic Process Guide Generator Tools," In Proceedings of International Conference on Software Process, pp. 61-72, Minneapolis, USA
- [21] **Supannika Koolmanojwong**, Barry Boehm, "An Empirical Study on MBASE and LeanMBASE" In Proceedings of Empirical Software Engineering and Measurement 2007, p. 496, Madrid, Spain
- [22] **Supannika Koolmanojwong**, Rachsuda Jiamthapthaksin and Jirapun Daengdej, "An Agent Architecture for Competitive Application Environment", 2004 IEEE Aerospace Conference, Montana, USA
- [23] **Supannika Koolmanojwong**, Jarawan Latthikulsumpun and Jirapun Daengdej, "Reflexive Agents for Competitive Application Environment" In Proceedings of 2003 IEEE Aerospace Conference, Montana USA
- [24] **Supannika Koolmanojwong**, Suparwat Charoenvikrom, Peerapol Moemeng and Jirapun Daengdej, "An Approach for Dealing with Lying Agents", The Fourth International Conference on Intelligent Technologies (InTech'03), Bangkok, Thailand
- [25] **Supannika Koolmanojwong** and Pratit Santiprabhob, "An Intelligent Electronic Marketplace for Tourism", The AU Journal of Technology 6(2): 75 - 79, October 2002
- [26] **Supannika Koolmanojwong** and Pratit Santiprabhob, "Intelligent Electronic Marketplace for Tourism", In Proceedings of the 6th World Conference on Systemics, Cybernetics and Informatics (SCI2002), Orlando, USA