

INSUP LEE  
Curriculum Vitae \*

## Education

- **Ph.D. in Computer Science**  
University of Wisconsin-Madison, May, 1983.  
Dissertation title: *DYMOS: A Dynamic Modification System*
- **M.S. in Computer Science**  
University of Wisconsin-Madison, December, 1978.
- **B.S. in Mathematics with Honors**  
University of North Carolina at Chapel Hill, May, 1977.

## Employment

- 9/05-present: Cecilia Fidler Moore Professor of Computer and Information Science, University of Pennsylvania, Philadelphia, PA
- 7/12-12/17, Distinguished Adjunct Professor, Department of Information and Communication Engineering, DGIST, Korea.
- 3/08-6/08: Distinguished Visiting Professor, Korea University, Seoul, Korea
- 9/04-1/10: Consultant, Fremont Associates, LLC
- 9/03-present: Professor of Electrical and Systems Engineering (Secondary)
- 7/97-present: Professor, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA
- 7/89-6/97: Associate Professor, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA
- 6/89-9/00: Consultant, Computer Command and Control Company, Philadelphia, PA
- 7/83-6/89: Assistant Professor, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA
- 1/83-5/83: Instructor, Computer Sciences Department, University of Wisconsin-Madison, Madison, WI
- 6/79-7/79: Visiting Research Assistant to Korean Institute of Science and Technology, Seoul, Korea, on a Scholarship from KSEA (Korean Scientist and Engineers Association in America)
- 1/78-12/82: Research/Teaching Assistant, Computer Sciences Department, University of Wisconsin-Madison, Madison, WI

## Position

- 7/21-present, Founder, VitalCore Software Inc. (PCIV UPstart Company)
- 1/19-present, Founding Co-Editor-in-Chief, ACM Transactions on Computing for Healthcare.
- 9/08-present, Director, PRECISE Center, School of Engineering and Applied Science, University of Pennsylvania, Philadelphia, PA (<https://precise.seas.upenn.edu/>)

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\*Updated on 1 February 2023.

- 1/17-6/20, Founding Co-Director, Penn Center for Health, Devices and Technology, University of Pennsylvania (<https://healthtech.upenn.edu/>)
- 7/15-6/19, Chair, ACM SIGBED - Special Interest Group on Embedded Systems. ACM SGB EC Member-at-Large, 2016-2018.
- 1/03-12/04, Chair, IEEE Computer Society TCRTS (Technical Committee on Real-Time System).
- 1/01-12/02, Vice Chair, IEEE Computer Society TCRTS (Technical Committee on Real-Time System).
- 7/94-6/97: CSE Undergraduate Curriculum Chair, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA

### Awards and Honors

- AAAS Fellow, For foundational contributions to the theory and implementation of real-time compositional scheduling and runtime verification, 2022.
- ACM SIGBED Inaugural Distinguished Leadership Award, October 12, 2022. For leadership in promoting cross-fertilization of ACM and IEEE communities in Cyber-Physical Systems, Embedded Systems, and Real-Time Systems.
- IEEE Life Fellow, 1 January 2021.
- RV Test-of-Time Award, Runtime Verification 2019.
- Deans' Distinguished Visiting Professorship, Perelman School of Medicine, University of Pennsylvania, 17 January 2019.
- ACM Fellow, For theoretical and practical contributions to compositional real-time scheduling and runtime verification, 2017.
- Member, NRC's Committee on 21st Century Cyber-Physical Systems Education, 2014-2015.
- Appreciation Plaque, Ministry of Science, IT and Future Planning, South Korea, 9 August 2013.
- 3rd KOCSEA (Korean Computer Scientists and Engineers Association in America) Appreciation Award, 2011.
- IEEE TC-RTS Outstanding Technical Achievement and Leadership Award, Dec 2008.
- The Edward M. Kennedy Award for Health Care Innovation 2007, CIMIT (Center for Integration of Medicine and Innovative Technology), Medical Device "PnP" Interoperability Team, Julian Goldman (leader), Dave Arney, Insup Lee, et al.
- Member, President's Council of Advisors on Science and Technology (PCAST) Networking and Information Technology (NIT) Technical Advisory Group (TAG), 2006-2007.
- DVP Speaker of IEEE Computer Society Distinguished Visitors Program (DVP), 2004-2006.
- IEEE Fellow, For contributions to the specification languages and verification tools for real-time systems, 2001.
- KSEA Certificate of Appreciation "in recognition of excellent contribution to KSEA as Co-Chair of ICTS at the 2005 US-Korea Conference (UKC 2005)."
- IEEE Computer Society's Certificate of Appreciation
  - "for your important contributions to ISORC 2006 as a Symposium Co-Chair," April 25, 2006.

- “for his important contributions to the ISORC 2004 as Program Co-Chair,” May 12, 2004.
- “for your important contributions to the development of the 1st IEEE CS Symposium on Object-oriented Real-time Distributed Computing program as Program Co-Chair,” April 20, 1998
- “for an outstanding performance as co-chairs of the 1992 and 1993 Real-Time Systems Symposiums,” Feb 23, 1994.
- Board of Directors, Philip Jaisohn Memorial Foundation, Philadelphia, since 1995.
- ACM Certification of Appreciation “in recognition of advice and guidance to the University of Pennsylvania Programming Team at the ACM Allegheny Regional Scholastic Programming Contest.” Second Place, Allegheny Regionals, Division I, 1990.
- Honorary Masters Degree, University of Pennsylvania, 1989.

#### **Awards with Students and Postdoc Fellows**

- ACM Transactions on Embedded Computing Systems (TECS) Best Paper Award 2022, Oct 13, 2022, for the paper: Ivanov, Radoslav, Taylor J. Carpenter, James Weimer, Rajeev Alur, George J. Pappas, and Insup Lee. Verifying the safety of autonomous systems with neural network controllers. ACM Transactions on Embedded Computing Systems (TECS) 20, no. 1 (2020): 1-26.
- Distinguished Paper Award. Yahan Yang, Ramneet Kaur, Souradeep Dutta, Insup Lee. Interpretable Detection of Distribution Shifts in Learning Enabled Cyber-Physical Systems, ICCPS, May 2022.
- Best Contributed Theoretical Paper Award. Alan Ismaiel, Ivan Ruchkin, Jason Shu, Oleg Sokolsky, Insup Lee. Data Generation with PROSPECT: a Probability Specification Tool. Winter Simulation Conference (WinterSim). Phoenix, Arizona, 2021.
- Outstanding Paper Award, Real-Time Networks and Systems (RTNS). Towards Virtualization-Agnostic Latency for Time-Sensitive Applications. Haoran Li, Meng Xu, Chong Li, Chenyang Lu, Christopher Gill, Linh Phan, Insup Lee and Oleg Sokolsky. April 2021.
- Best Paper Award, ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE). Detecting Security Leaks in Hybrid Systems with Information Flow Analysis. Luan Nguyen, Gautam Mohan, James Weimer, Oleg Sokolsky, Insup Lee and Rajeev Alur. Oct 2019.
- Best Paper Award, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS). Holistic resource allocation for multi-core real-time systems. Meng Xu, Linh Thi Xuan Phan, Hyon-Young Choi, Yuhan Lin, Haoran Li, Chenyang Lu, Insup Lee. April 2019.
- Best Paper Award, IEEE Int. Symposium on Real-Time Computing (ISORC). Data Freshness Over-Engineering: Formulation and Results. Dagaen Golomb, Deepak Gangadharan, Sanjian Chen, Oleg Sokolsky, and Insup Lee. May 2018.
- Best Paper Award, Adaptive Transient Fault Model for Sensor Attack Detection, IEEE Int. Conf. on Cyber-Physical Systems, Networks, and Applications (CPSNA), Minsu Jo, Junkil Park, Yungmi Baek, Radoslav Ivanov, James Weimer, Sanghyuk Son, and Insup Lee, Oct 6-7, 2016.
- Best Paper Award, ACM/IEEE International Conference on CPS (ICCPS), Robustness of Attack-resilient State Estimators, Miroslav Pajic, James Weimer, Nicola Bezzo, Paulo Tabuada, Oleg Sokolsky, Insup Lee and George J. Pappas, April 2014.
- Best Paper Award, IEEE Real-Time Systems Symposium (RTSS), Hoon Sung Chwa, Hyoungbu Back, Sanjian Chen, Jinkyu Lee, Arvind Easwaran, Insik Shin and Insup Lee, Extending Task-level to Job-level Fixed Priority Assignment and Schedulability Analysis Using Pseudo-deadlines, Dec 2012.

- Best Student Paper Award, Miroslav Pajic, Zhihao Jiang, Insup Lee, Oleg Sokolsky and Rahul Mangharam, “From Verification to Implementation by Model Translation and a Pacemaker Case Study,” IEEE RTAS, April 2012.
- Co-Best Paper Award, CEAS ’11, “Link Spamming Wikipedia for Profit,” West, A.G., Chang, J., Venkatasubramanian, K., Sokolsky, O., and Lee, I., CEAS ’11: 8th Annual Collaboration, Electronic Messaging, Anti-Abuse, and Spam Conference, Sept 2011.
- Dissertation Advisor, Bronze Prize, Samsung Electronics’ Humantech Thesis Contest, Dissertation on “A Design Framework for Real-Time Embedded Systems with Code Size and Energy Constraints” by Insik Shin and Sheayun Lee, Feb 2005. (Co-advised with Professor Sang Lyul Min at SNU)
- Best Paper Award, IEEE Real-Time Systems Symposium (RTSS), “Periodic Resource Model for Compositional Real-Time Guarantees,” (with Insik Shin) Dec 2003.

### Research Interests

- Cyber-Physical Systems (CPS), Real-Time Embedded Systems, Medical Cyber Physical Systems/Internet of Medical Things, Model-Based Development, Runtime Verification, Assurance Cases, Safe Autonomy

### Professional Societies

- Member of American Association for the Advancement of Science (AAAS)
- Member of Association of Computing Machinery (ACM)
- Member of IEEE Computer Society
- Member of KOCSEA (Korean-American Computer Scientists and Engineers Association)
- Member of KSEA (Korean-American Scientists and Engineers Association)

### Professional Activities - Editorial Boards

- Founding Co-Editor-in-Chief, ACM Transactions on Computing for Healthcare, since 2018.
- Editorial Board, ACM Transactions on CPS, 2015-2018.
- Editorial Board, Proceedings of IEEE, 2014-2019.
- Area Editor for Real-Time Systems, Embedded Systems, and Cyber-Physical Systems, *Journal of ACM*, 2013-2017.
- Founding Co-Editor-in-Chief, KIISE Journal of Computing Science and Engineering (JCSE), since Sept 2007.
- *Real-Time Systems: The International Journal of Time-Critical Computing Systems*: Associate Editor (2003-2010), Advisory Board since 2010.
- Editorial Board: *Formal Methods in System Design*, 1996-2017.
- Editorial Board, *Journal of Electrical Engineering and Information Science*, 1998-2001.
- Editorial Board, *IEEE Transactions on Computers*, 1995-2000.

### Professional Activities - Service and Leadership

- Member, the IEEE Computer Society Fellow Evaluation Committee, 2020

- Chair, ACM SIGBED - Special Interest Group on Embedded Systems, 2015-2019. ACM SGB EC Member-at-Large, 2016-2018. SIG Governing Board Awards Committee Liaison, 2016-2018.
- Chair, IEEE Computer Society Technical Committee on Real-Time System, 2003-2004.
- Vice Chair, IEEE Computer Society Technical Committee on Real-Time System, 2001-2002.
- Naval Research Lab (NRL) External Research Review Panel for Information Technology S&T Program (1997, 2004)
- President, Philadelphia Chapter of KSEA (Korean-American Scientists and Engineers in America), 1990-1991.

### **Professional Activities - Steering and Advisory Committees**

- Steering Committee, CPS Week (since 2008, Chair 2012), ES Week (2007-2013), ATVA (since 2004), ISORC (since 2010), Run-Time Verification (since 2002), CPS-VO Education Group (since 2011)
- Steering Committee, Chair, ICCPS (since 2015)
- Advisory Committee: Co-Chair, MobiQuitous 2016, Hiroshima; CyPhy (since 2014),
- Advisory Committee, Body Sensor Network Contest, May 23, 2011. <http://bsncontest.org/>; IEEE RTCSA 2013.
- Advisory Board: CPS Summer School, Georgia Institute of Technology, June 22-26, 2009; Advisory Board, International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), 2004-2006.
- Co-Chair, IEEE CS Technical Steering Committee on Embedded Systems, 2005-2006.
- Steering Committee, International Conference on Real-Time Computing Systems and Applications (RTCSA), 1996-2002.
- Executive Committee: ACM SIGBED (2006-2012); Executive Committee, IEEE CS Technical Committee on Real-Time Systems, 1994-1996, 2005-2012; Executive Committee, EMSOFT (2005-2013)
- Advisory Committee, IT Symposium, UKC 2007, Aug 9-12.
- Executive Committee, KOCSEA (Korean-American Computer Scientists and Engineers Association), 1995-2001.
- Steering Committee Chair, NRC '98, The 9th KSEA Northeast Regional Conference, Rutgers University, New Brunswick, NJ, March 6-7, 1998.

### **Professional Activities - Conference and Workshop Chairs**

- Program Co-Chair, CHASE 2017, Philadelphia.
- General Co-Chair, CPSWeek 2013, Philadelphia.
- General Co-Chair, ICCPS 2012.
- Workshop Co-Organizer, SoSMD 2012.
- Program Co-Chair, ICCPS 2011.
- General Co-Chair, 1st Int. Conf. on Runtime Verification, Nov 1-4, 2010, Malta.

- Co-organizer, 2nd workshop on HCMDSS and MD PnP, CPS Week, San Francisco, April 2009.
- Co-organizer, CRTS (Compositional Real-Time Systems) Workshop. (Dec 2008, Dec 2009, Dec 2010)
- General Co-Chair, *Int. Conf. on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, Taipei, Taiwan, Aug 2008.
- Workshop Co-Chair, *Workshop on Software and Systems for Medical Devices and Services (SMDS)*, Dec 3, 2008.
- Co-organizer, Joint workshop on High-Confidence Medical Devices, Software, and Systems/ Medical Device Plug-and-Play (HCMDSS/MD PnP). (Boston, June 25-27, 2007; San Francisco, April 16, 2009)
- Symposium Co-Chair, *IEEE ISORC*, Gyeongju, Korea, Apr 24-26, 2006.
- General Chair, *Int. Workshop on Automated Technology for Verification and Analysis (ATVA)*, Taipei, Taiwan, Oct 2005.
- Co-Chair, *Information & Communication Technology Symposium (ICTS)* KSEA UKC 2005, Aug 2005.
- Chair Organizer, High-Confidence Medical Device Software and Systems (HCMDSS) Workshop, Philadelphia, PA, June 2-3, 2005 ([www.cis.upenn.edu/hcmdss/](http://www.cis.upenn.edu/hcmdss/))
- Co-organizer, High-Confidence Medical Device Software and Systems (HCMDSS) Planning Workshop, Arlington, VA, Nov 16-17, 2004. ([www.cis.upenn.edu/hcmdss-planning/](http://www.cis.upenn.edu/hcmdss-planning/))
- Program Co-Chair, *IEEE Int. Symposium on Object-oriented Real-time distributed Computing (ISORC)* Vienna, Austria, May 12-14, 2004.
- Program Co-Chair, *Int. Workshop on Automated Technology for Verification and Analysis (ATVA)*, Taipei, Taiwan, Dec 10-13, 2003.
- Program Co-Chair, *Int. Conf. on EMSOFT*, Philadelphia, Oct 13-15, 2003.
- Program Co-Chair, *Monterey Workshop on Software Engineering for Embedded Systems: From Requirements to Implementation*, Chicago, Sep 24-26, 2003.
- General Co-Chair, *IEEE Int. Symposium on Object-oriented Real-time distributed Computing (ISORC)*. [Newport Beach, CA, March 15-17, 2000], [KyoumJu, Korea, April 24-26, 2006]
- Program Co-Chair, *IEEE Int. Symposium on Object-oriented Real-time distributed Computing (ISORC)*, Kyoto, Japan, April 20-22, 1998.
- Program Co-Chair, *Int. Workshop on Real-Time Computing Systems and Applications (RTCSA)*, Seoul, Korea, Oct 30 - Nov 1, 1996.
- Conference Co-Chair, *CONCUR '95 - Int. Conf. on Concurrency Theory*, Philadelphia, PA, Aug 1995.
- Program Co-Chair, *Int. Workshop on Real-Time Computing Systems and Applications (RTCSA)*, Seoul, Korea, Dec 1994.
- General Co-chair, *IEEE Real-Time Systems Symposium*, Dec 1993.
- Program Co-Chair, *IEEE Real-Time Systems Symposium*, Dec 1992.
- Conference vice-chairman, *KSEA Northeast Regional Conference*, Lehigh University, Nov 1988.

## Professional Activities - Program Committees

- ACM/IEEE CHASE 2018
- RV: *International Conference on Runtime Verification* (2013, 2014, 2015, 2018)
- RTSS: *IEEE Real-Time Systems Symposium* (1985-1988, 1990, 1992, 1996, 1998-2002, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012)
- SIES 2013
- ISEP-IPP 2013
- DSMDS 2011
- EMSOFT: *ACM Conference on Embedded Software* (2003, 2004, 2005, 2008, 2011)
- ICHI (IEEE Int. Conference on Healthcare Informatics), 2013.
- ISORC: *IEEE Int. Symposium on Object-oriented Real-time distributed Computing* (1998, 2002-2005, 2007, 2009, 2010, 2012, 2013)
- RTAS: *IEEE Real-Time and Embedded Technology and Applications Symposium* (1990, 1998, 2000, 2001, 2004, 2007, 2009, 2015)
- ICCPS: *International Conference on Cyber-Physical Systems* (2010, 2013)
- SRDS *IEEE Symposium on Reliable Distributed Systems* (2012, 2013)
- DAC (2011)
- FTRA WCC-WTA 2011, The 7th International Symposium on Wireless sensor network Technologies and Applications for Smart Space (WTA 2011)
- CPNS (International Workshop on Cyber-Physical Networking Systems) (2011, 2012)
- RTCSA: *Int. Conference on Real-Time Computing Systems and Applications* (1994-1996, 1999, 2000, 2004, 2005, 2010, 2011, 2014)
- ECRTS: *Euromicro Conference on Real-Time Systems* (1999, 2003, 2004)
- ATVA: *Int. Symposium on Automated Technology for Verification and Analysis* (2003, 2004, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014)
- ICTAC 2014
- ICCAD: Conference for Electronic Design Technology (2011, 2012)
- ICECCS (7th IEEE International Conference on Engineering of Complex Computer Systems) 2012.
- ICFEM (14th International Conference on Formal Engineering Methods) 2012.
- Wireless Health (WH) 2011, 2014, 2015
- BSN (Body Sensor Networks) 2010
- LCTES 2009, *ACM Conf. on Languages, Compilers, and Tools fro Embedded Systems*, Dublin, Irland
- FHIES *Int. Symposium on Foundations of Health Information Engineering and Systems* (2011, 2012, 2013, 2014)
- IEEE PIMRC 11, Wireless Networks and Health Care Track, Sept 2011, Toronto, Canada.

- FM2009, Eindhoven, the Netherlands.
- SSS (*Int. Symposium on Stabilization, Safety, and Security of Distributed Systems*) (2009, 2012)
- ICTAC (international Colloquium on Theoretical Aspects of Computing), Aug 2009.
- ACM SAC track on Real-Time Systems (2009, 2011)
- CSA (Int. Conf. on Computer Science and its Applications), Jeju, Korea, Dec 2009
- FORMATS: *Int. Conf. on Formal Modeling and Analysis of Timed Systems* (2005, 2007, 2008, 2009, 2012)
- CASES: *Int. Conf. on Compilers, Architectures, and Synthesis for Embedded Systems* (2006)
- ICCP: *Int. Conf. on Intelligent Computer Communication and Processing* (2006)
- ICSoft: *Int. Conf. on Software and Data Technologies* (2006, 2007)
- ETFA: Emerging Technologies and Factory Automation, 2009
- MEMOCODE: *ACM-IEEE Int. Conf. on Formal Methods and Models of Codesign* (2005)
- ICDCS: *IEEE Int. Conference on Distributed Computer Systems* (1999, 2001, 2003, 2012)
- FORTE: *Formal Techniques for Networked and Distributed Systems* (2002)
- EUC: *IFIP Int. Conference on Embedded and Ubiquitous Computing*, (2007).
- ASP-DAC: *Asia South Pacific Design Automation Conference* (2005)
- ICESS: *Int. Conference on Embedded Software and Systems*. (2004, 2007)
- QSIC: *Int. Conference for Quality Software* (2003, 2004, 2005, 2006)
- *KSEA UKC ICT (Information & Communication Technology) Symposium* (2003, 2006)

#### **Professional Activities - Workshop Committees**

- SafeThings: 2017, 2020, 2021
- APRES, 2011, 2014
- ASSURE (1st Int. Workshop on Assurance Cases for Software-intensive Systems), 2013
- Workshop on Open Resilient human-aware Cyber-physical Systems (WORCS), 2013
- SEHC 2012, 2013, 2014
- USENIX HealthSec Workshop (2012, 2013)
- 1st Int. Workshop on Large-Scale Cyber-Physical Systems (LCPS 2011), Dec 12-13, 2011.
- First Workshop on Future Directions in Cyber-physical Systems Security, US DHS, July 22-24, 2009.
- RV: *Workshop on Runtime Verification* (2001, 2002, 2006, 2009)
- IEEE International Workshop on Component-Based Design of Resource-Constrained Systems (CORCS 2008, 2009, 2012)
- WCPS: Int. Workshop on Cyber-Physical Systems (2009, 2008)



- WSNHC: *Wireless Sensor Networks for Health Care* (2007)
- HSCC: *Int. Workshop on Hybrid Systems: Computation and Control* (2005)
- JTRES: *Workshop on Java Technologies for Real-time and Embedded Systems* (2005)
- WORDS: *IEEE Int. Workshop on Object-oriented Real-time Dependable Systems* (1996, 1997, 1999, 2001, 2003, 2005)
- TeleHealth: *1st Int. Workshop on TeleHealth* 2008.
- TPTS: *Workshop on Theory and Practice of Timed Systems* (2002)
- WPDRTS: *Int. Workshop on Parallel and Distributed Real-Time Systems* (2000, 2001, 2002)
- RSP: *IEEE Int. Workshop on Rapid System Prototyping* (2000, 2001)
- *IEEE Int. Workshop on Distributed Real Time Systems* (2000)
- *ARO/NSF Monterey Workshop on Increasing the Practical Impact of Formal Methods for Computer-Aided Software Development* (1998)
- *ACM Workshop on Language, Compiler, and Tool Support for Real-Time Systems* (1995)
- *Formal Tech in Real Time and Fault Tolerant Systems*, Schleswig, Germany (1994)
- *North America Process Algebra Workshop*, Ithaca, NY, Aug 1993.

#### Professional Activities - Miscellaneous

- Advisory Member, KOCSEA President Election Board (2009, 2012)
- Organization Committees:
  - *Workshop on Software Engineering and Programming Languages* (1996)
  - *Mini-track Coordinator for Distributed Real-Time Systems, Hawaii Int. Conf. on System Sciences* (1996)
  - *ARO Workshop on Formal Methods: Automatic Verification* (1993)
  - *ARO Workshop on Formal Methods: Real-Time Systems* (1992)
  - *ARO Short Courses on Introduction to Parallel Architectures, Processing and AI Applications* (1986, 1987, 1988)
  - *Local arrangements, 8th Int. Symposium on Protocol Specification, Testing, and Verification* (1988)
- NSF Proposal Review Panels
- Award Selection Committee, “Being an Korean-American” essay contest for high school students, Philip Jaisohn Memorial Foundation. (1996-2001)
- Board of Advisors for KASCON VIII (Korean-American Students Conference) Philadelphia, PA (April 1994).
- Ph.D. Program Evaluation Team for Computer Science and System Science Department, State University of NY at Binghamton, Sept 1992.

#### Courses Taught at the University of Pennsylvania

- CSE 341 – Compilers (Spring 1991, Fall 1991)
- CSE 380 – Introduction to Operating Systems (Spring 1984-1989, Fall 1994, Fall 1996-2000, Fall 2003)
- CSE 400/401 – Senior Design Projects (Fall 2008, Spring 2009, Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015)

- CIS 441/541 – Embedded Software for Life-Critical Applications (Fall 2010-2020, Spring 2022)
- CSE 480 – Distributed and Real-Time Systems: New course designed and developed with the NSF equipment grant, “Teleconferenced Workstations: Improving Experimentation in Undergraduate Education.” (Spring 1994, Spring 1996) Real-Time and Embedded Systems (Fall 2006)
- CIS 505 – Software Systems (Spring 2005-2007)
- CIS 523 – Programming Languages (Fall 1984)
- CIS 541 - Embedded and Cyber Physical Systems (Spring 2010)
- CIS 570 – Operating Systems (Fall 1983)
- CIS 640 – Advanced Topics in Computer Systems: Software Engineering (Spring 1995), Mobile Computing (Spring 1998), E-commerce and E-auction (Spring 2000)
- CIS 640 – Advanced Topics in Software Systems: Software Reliability Methods and Embedded Systems (Fall 2002); Embedded Systems and Sensor Networks (Spring 2004)
- CIS 642 – Seminar in Real-Time Computing (Fall 1989, Fall 1990, Spring 1992, Fall 1993, Fall 1995, Spring 1999, Spring 2001)
- CIS 671 – Advanced Topics in Operating Systems (Spring 1985, Spring 1989)
- CIS 799A – Seminar in Distributed Computing (Fall 1984-1987)
- CIS 800 – Topics in Cyber-Physical Systems (Spring 2012)
- EMTM 553 – Electronic Commerce Systems (Winter 2001, Spring 2001)

#### **Courses Taught at the University of Wisconsin-Madison**

- CS 302 – Algebraic Language Programming (Fall 1978, Spring 1979)
- CS 536 – Introduction to Programming Languages and Compilers (Spring 1983)
- CS 537 – Introduction to Operating Systems (Summer 1981)

#### **Ph.D. Dissertation Supervision**

1. David Smitley, *The Utilization of Processors Interconnected with a Reconfigurable Network*, May 1987. (Started as Research Scientist, Supercomputing Research Center, Lanham, Maryland)
2. Amy Zwarico, *An Algebraic Model for Communicating Time-Dependent Processes*, May 1988. (Started as Assistant Professor, Computer Science Department, the Johns Hopkins University, Baltimore, Maryland)
3. Richard Gerber, *Communicating Shared Resources: A Model for Distributed Real-Time Systems*, August 1991. (Started as Assistant Professor, Department of Computer Science, University of Maryland, College Park, Maryland) (Received the Morris and Dorothy Rubinoff Award for the best CIS Ph.D. dissertation, 1992)
4. Victor Wolfe, *Supporting Real-Time Concurrency*, August 1991. (Co-advised with Susan B. Davidson) (Started as Assistant Professor, Department of Computer Science, The University of Rhode Island, Kingston, RI)
5. Robert King, *Design, Implementation and Evaluation of a Real-Time Kernel for Distributed Robotics*, December 1991. (Started as Research Scientist, IBM, Yorktown Heights, NY)

6. Patrice Brémont-Grégoire, *A Process Algebra of Communicating Shared Resources with DenseTime and Priorities*, May 1994. (Continue working at UNYSIS)
7. Hanène Ben-Abdallah, *GCSR: a Graphical Language for the Specification, Refinement and Analysis of Real-Time Systems*, Aug 1996. (Co-advised with Susan B. Davidson) (Started as Postdoc at the University of Waterloo, Professor at U. of Sfax, Tunisia)
8. Duncan Clarke, *Testing Real-Time Constraints*, Dec 1996. (Started as Assistant Professor, Department of Computer Science, The University of Kentucky, Lexington, KY)
9. Inhye Kang, *Real-Time System Analysis based on State-Space Exploration*, May 1997. (Started as Assistant Professor, Department of Computer Science, Soong-Sil University, Korea; Professor, University of Seoul, Korea)
10. Hee Hwan Kwak, *Process Algebraic Approach to the Parametric Analysis of Real-time Scheduling Problems*, Feb 2000. (Started as Senior R&D Engineer II, Synopsys, Portland, OR)
11. Mahesh Viswanathan, *Foundations for the Run-Time Analysis of Software Systems*, Sept 2000. (Co-advised with Sampath Kannan) (Started as Postdoc at DIMACS, Assistant Professor, Department of Computer Science, University of Illinois at Urbana-Champaign) (Received the Morris and Dorothy Rubinoff Award for the best CIS Ph.D. dissertation, 2001)
12. Moonjoo Kim, *Information Extraction. for Run-time Formal Analysis*, Dec 2001. (Co-advised with Sampath Kannan) (Started as Postdoc at POSTECH, Korea; Currently Assistant Professor at KAIST, Korea)
13. Jia Wang, *Loss-Sensitive Decision Rules for Intrusion Detection and Response*, July 2004. (Co-advised with Linda Zhao, Statistics Department) (CEO, Venus Info Tech Inc., Beijing, P.R. China)
14. Insik Shin, *A Compositional Framework for Real-time Embedded Systems*, Aug 2006. (Started as Postdoc at Malardalen University, Sweden; Assistant Professor at KAIST, Korea) (Received the Morris and Dorothy Rubinoff Award for the best CIS Ph.D. dissertation, 2006)
15. Usa Sammapun, *Monitoring and Checking of Real-Time and Probabilistic Properties*, May 2007. (Co-advised with Oleg Sokolsky) (Started as IT staff, Goldman Sachs; Kasetsart U., Thailand)
16. Michael May, *Privacy APIs: Formal Models For Analyzing Legal Privacy Requirements*, May 2008. (Co-advised with Carl Gunter) (Development Manager, QIS, Ltd; Radio Adviser Contractor, Partner Communications, Limited; Faculty Lecturer, Kinneret College on the Sea of Galilee, Israel)
17. Madhukar Anand, *Conditional Models for Compositional Design of Real-Time Embedded Systems*, May 2008. (Cisco, Data Center Team)
18. Arvind Easwaran, *Advances in Hierarchical Real-Time Systems: Incrementality, Optimality, and Multi-processor Clustering*, Dec 2008. (Co-advised with Oleg Sokolsky) (Postdoc, IPP-HURRAY, Polytechnic Institute of Porto) (Research Scientist, Honeywell) (Assistant Professor, NTU, Singapore)
19. Nikhil Dinesh, *Regulatory Conformance: Logic and Logical Form*, Dec 2010. (Co-advised with Aravind Joshi) (Researcher, SRI)
20. Jian Chang, *Behavior-Centric Trust Management in Distributed Systems*, May 2013. (Co-supervised with Sampath Kannan) ([www.openx.com](http://www.openx.com))
21. Andrew G. West, *Damage Detection and Mitigation in Open Collaboration Applications*, May 2013. (Co-supervised with Oleg Sokolsky) (Verisign)

22. Zhuoyao Zhang, *Performance Modeling and Resource Management for MapReduce Applications*, May 2014. (Co-supervised with Boon Tau Loo) (Google)
23. BaekGyu Kim, *Safety-Assured Model-Based Development of Real-Time Embedded Software for the GPCA Infusion Pump*, August 2015. (Co-supervised with Oleg Sokolsky) (Toyota ITC)
24. Andrew King, *Foundations for Safety-Critical On-Demand Medical Systems*, May 2016. (Zoox)
25. Bong Ho Kim, *Techniques for End-To-End TCP Performance Enhancement over Wireless Networks*, August 2016. (Working at Nokia, US)
26. Sanjian Chen, *Model-Based Analysis of User Behaviors in Medical Cyber-Physical Systems*, August 2016. (Applied Predictive Technologies (APT))
27. Alexander Roederer, *Parameter Invariant Statistics and Their Application to Clinical Decision Support*, Aug 2016. (Co-supervised with C. William Hanson III, MD) (Google)
28. Jaewoo Lee, *Resource-Efficient Scheduling of Multiprocessor Mixed-Criticality Real-Time Systems*, June 2017. (Co-supervised with Linh P.X. Phan) (Postdoc at Seoul National University (SNU), Assistant Professor at Choong-Ang University)
29. Radoslav Ivanov, *Context-Aware Sensor Fusion for Securing Cyber-Physical Systems*, July 2017. (Co-supervised with James Weimer) (Assistant Professor, RPI)
30. Junkil Park, *Automatic Verification of Linear Controller Software*, May 2017. (Co-supervised with Oleg Sokolsky) (Research Scientist, SGT/NASA Ames Research Center)
31. Meng Xu, *Cache-Aware Real-Time Virtualization*, June 2018. (Co-supervised with Linh P.X. Phan) (Apple)
32. David Arney, *Medical Device Interoperability with Provable Safety Properties*, May 2019. (Principle Associate, Harvard Medical School).
33. Sangdon Park, *Uncertainty Estimation toward Safe AI*, Aug 2021. (Co-supervised with Osbert Bastani) (Postdoc, Georgia Tech)
34. Tang Zhang, *RV-enabled framework for self-adaptive software*, Aug 2021. (Co-supervised with Oleg Sokolsky) (Facebook)

### Master's Thesis Supervision

1. David M. Leonard, *Deterministic Multiple Processor Task Scheduling*, Dec. 1985.
2. Osvaldo M. Yasuda, *Remote Predicate Invocation in Prolog*, May 1987.
3. Robert King, *Design and Implementation of a Real-Time Distributed Kernel*, August 1987.
4. Hanene Ben-Abdallah, *Design and Implementation of UDP/IP for Timix*, May 1991.
5. Jisook Youn, *Methodology and Techniques for the Translation of SDL to ACSR*, May 1997.
6. Yoshihito Takashima, *Towards Time and Value Determinism in Real-Time System with Virtual Machine*, August 2006. (Co-advised with Sebastian Fischmeister)
7. Santosh G. Vattam, *Medical Device Dongle: An Open Source Standards-based Platform for Interoperable Medical Device Connectivity*, May 2012.
8. Cong Liao, *A Trust-Based Crowd-Sourcing Model for Information Evaluation in Vehicular Networks*, May 2013.

9. Meng Xu, *Overhead-Aware Compositional Scheduling Analysis of Real-Time Systems*, May 2013. (Co-advised with Linh Thi Xuan Phan)
10. Peter Gebhard, *System Support for Secure Updating of Consumer IoT Devices*, May 2017.
11. Yaser Abdulelah Alabdulbaqi, *Formal Models of Human-Computer Interactions: Lessons form Human Reliability Analysis Methods*, Systems Engineering, May 2017.

### Senior Project Supervision

- Class of 1984 - Ned Batchelder, Michael S. Dusche, Elizabeth P. Gazouleas, Abigail Schweber
- Class of 1985 - Jerrol Davis, James C. Fu, Peter Go, Susanna Scala, Alan Waxman
- Class of 1986 - JoAnn Chang, Gaylord Holder, Shiu Kee Mok, Shin Ngai, John Rozario, Quang Tan, Khanh Tran
- Class of 1987 - Andrew Gideon, Vadim Mzhen
- Class of 1988 - Sung-Ho Ahn, Terence Lim
- Class of 1990 - Lalit Das, Manu Gambhir, Ronald Levinson
- Class of 1992 - Lawrence Katzman, Kok-Hoon Teo
- Class of 1995 - Ferit Albukrek, Alexander Gizis, Vicky Wei-Jen Lai, Ioi Kim Lam, Garrett Schade, John H. Seung
- Class of 1997 - Earl Grant-Lawrence Eugenia Ho, Chiram Littleton, David Robinson, Mike Selhorn, Adam Tarshis
- Class of 1998 - Sameer Merchant, Jeff Robertson, M. Ross, Andre Sung
- Class of 1999 - Charles Go
- Class of 2000 - Yuriko Horvath, Marvin Kawabata, Andrew Kim, David Kim, Cole Parker, Mike Rosenthal, Joel Susal (The senior design project by Kawabata, Susal, Parker, and Rosenthal placed the 1st in the SEAS senior design competition.)
- Class of 2001 - Eric R Brueggemann, Daniel Chang, Dan Fleisher, Munenari Fukuda, Ethan D Gur-Esh, Jason W Heckathorn, Jisen Ho, Jay A Kalyanaraman, Alex Koo, Jonathan Liang, Sudeep Mathur, Christopher Ngan, Kevin O'Brien, Usa Sammapun, John A. Sinclair, Kavitha Shastry, Sam M. Sokolovsky, Robert Spier, Raymond Wong, Daniel A. Wu
- Class of 2003 - Jennifer R. Gau, Fei Jin, Uri Korn, Litton Chen (EE), Dan Keeley (EE), Jonathan Ha (EE), Sangyop Lee (EE)
- Class of 2004 - Yongjoon P. Lee, Khurram Taji
- Class of 2005 - Yoshihito Takashima, Mike Benoit (EE), Mike Swavola (EE)
- Class of 2010 - Ana Rosa Giannareas, Vanessa Kern, Nicholas Stevens, Adrian Viesca-Trevino (ESE) (Their senior design project on "Smart Alarms" placed the 1st in the SEAS senior design competition. This team is called NAVA.)
- Class of 2011 - Avantika Agrawal, Phillip Baker, Brittney Exline
- Class of 2013 - Benjamin Perez, Chris Feo; Preetam D'Souza, Max Guo, David Wang

- Class of 2014 - Mingzhe Lin, Deepthi Shashidhar
- Class of 2017 - Jae Joon Lee, Spiro Metaxas, Chad Nachiappan, Vivek A. Raj
- Class of 2018 - Yuting Yue (Summer, EAS499)
- Class of 2019 - Antonio Menarde (SYS), James Taggart (CSCI), Monica Vyavahare (CSCI), Stephanie Tang (CMPE), and Tristrum Tuttle (CSCI)
- Class of 2020 - Walter Chen (CSCI), Ria Nagar (SYS), Bill Lou (CSCI), Howard Yuan (SYS);
- CIS498: Senior Thesis, Yiwei Chen. Study of Route Optimization Algorithms, Improvements with Metaheuristics and Machine-learning Models, and an Industrial Case Study with AmeriGas. Spring 2022

### Summer Interns (from 2018)

- 2018: Mark Choi, Michael Cipolla (PURM), Aditya Hota (PURM), Hyung Ji Jung (PURM), Justin Swirbul (PURM)
- 2019: Ben Chrepta, Joy Leeswadtrakul (PURM), Aditya Hota (Rachleff Scholar), Sewon Park (Rachleff Scholar), Margaret Steiner (George Washington University), Alexander Wang (PURM)
- 2020: Alan Ismaiel (PURM), Jason Shu (PURM)
- 2021: Ryan Tong (PURM), Sriram Tolety (PURM), Jack Zhang (PURM)

### Selected External Habilitation and Ph.D. Committees

- External Committee Member, PhD Dissertation by Esen Yel, “Online Predictive Monitoring and Planning for Safe Autonomous Robotic Systems,” University of Virginia, Aug 2021.
- External Committee Member, PhD Dissertation by Vuk Lesi, Department of Electrical and Computer Engineering, “Design of Secure and Safe Cyber-Physical Systems,” Duke University, Aug 2019.
- External Committee Member, PhD Dissertation by Sisu Xi, Computer Science and Engineering, “Real-Time Virtualization and Cloud Computing,” Washington University, St. Louis, Aug 2014.
- External Examiner, Ph.D. Dissertation by Silviu Craciunas, Department of Computer Sciences, “Programmable Temporal Isolation for High-Performance and Real-Time Systems,” University of Salzburg, Austria, July 2010.
- External Examiner, Ph.D. Dissertation in Computing and Software by Xia Yong Hu, “Proving Implementability of Timing Properties with Tolerances,” McMaster University, Canada, Aug 11, 2008.
- Opponent, Ph.D. Dissertation by Daniel Sundmark, ”Structural System-Level Testing of Embedded Real-Time System”, Maalardalen University, Sweden, Feb 15, 2008.
- Kerncommissie of Ph.D. Dissertation by Pieter Jan Laurens Cuijpers “Hybrid Process Algebra,” Technische Universiteit Eindhoven, Dec 9, 2004.
- Jury Member of Habilitation Thesis by Sergio Yovine, “Models, Algorithms, and Logics for the Analysis of Real-time and Hybrid Systems (Modèles, Algorithmes et Logiciels pour L’Analyse de Systèmes Temporisés et Hybrides),” University of Joseph Fourier, Grenoble, France, September 2001.
- Committee member of Ph.D. Dissertation by Gregor Goessler, “Compositional Modeling of Real-time Systems - Theory and Practice,” University of Joseph Fourier, Grenoble, France, September 2001.

## Postdoctoral Fellows and Research Associates

1. Dr. Jin-Young Choi, Postdoc (1993-1995) (Professor, Korea University)
2. Dr. Anna Philippou, Postdoc (Mar 1997 - Aug 1998) (Assistant Professor, University of Cyprus)
3. Dr. Oleg Sokolsky, Research Associate (Sep 1998 - June 2001)
4. Dr. Jitka Stribrna, Postdoc (Sep 2000 - Aug 2001)
5. Dr. Hyoung Seok Hong, Postdoc (Sep 2000 - Feb 2002), Research Associate. (Mar 2003 - Feb 2004)
6. Dr. Na Young Lee, Postdoc (Nov 2001 - Oct 2002)
7. Dr. Martin Leucker, Postdoc (Jan 2002 - Mar 2002)
8. Dr. Jesung Kim, Postdoc/Research Associate (April 2002 - Sep 2005) (Research Scientist, Matworks)
9. Dr. Li Tan, Postdoc (July 2002 - Dec 2003) (Research Scientist, Matworks; Assistant Professor, Washington State University Tri-Cities)
10. Dr. Sebastian Fischmeister, Research Associate, (Feb 2005 - Jan 2008) (Assistant Professor, University of Waterloo)
11. Dr. Vinayak Prabhu, Postdoc (July 2008 - Aug 2009)
12. Linh Thi Xuan Phan, Postdoc (March 2009 - June 2012) (Research Assistant Professor, University of Pennsylvania)
13. Dr. Eunkyong Jee, Postdoc (Sept 2009 - Jan 2011) (Research Assistant Professor, KAIST)
14. Dr. Krishna Venkatasubramanian (Sept 2009 - Aug 2012) (Assistant Professor, Worcester Polytechnic Institute)
15. Dr. Anaheed Zaki (March 2011 - Dec 2013) (Research Scientist, Mathworks)
16. Dr. Miroslav Pajic (Sept 2012 - June 2015) (Assistant Professor, Duke)
17. Dr. Nicola Bezzo (Nov 2012 - Dec 2015) (Assistant Professor, UVA, Jan 2016)
18. Dr. James Weimer (Nov 2012 - July 2016) (Research Assistant Professor, UPenn, Aug 2016)
19. Dr. Lu Feng (James S. McDonnell Fellow (April 2013 - Dec 2016) (Assistant Professor, UVA, Jan 2017)
20. Dr. Deepak Gangadharan (March 2015 - Aug 2019) (Assistant Professor at IIIT Hyderabad, Sept 2019)
21. Dr. Jin Hyun Kim (Dec 2015 - Feb 2019) (Assistant Professor, Gyung Sang University, Korea)
22. Dr. Hyon Young Choi (April 2016 - present)
23. Dr. Hyojin Jo (May 2016 - August 2018) (Assistant Professor, Hallym University, Korea)
24. Dr. Fanxin Kong (March 2017 - July 2018)(Assistant Professor, Syracuse University)
25. Dr. Nima Roohi (July 2017 - June 2018)(Postdoc fellow, UCSD)
26. Dr. Yiannis Kantaros (August 2018 - Dec 2021) (Assistant Professor, University of Washington at St. Louis)
27. Dr. Xian (Shawn) Li (November 2019 - present)

28. Dr. Ivan Ruchkin (Dec 2019 - present)
29. Dr. Souradeep Dutta (July 2020 - present)
30. Dr. Amanda Watson (August 2020 - present)

### Visiting Fellows

- Prof. Jin-Taek Choi, Department of Computer Science, Incheon University, Incheon, Korea (1993)
- Prof. Soonyong Seong, Department of Computer Engineering, Pusan University of Foreign Studies, Pusan, Korea (1995)
- Prof. Youngho Kim, Computer Science Department, Communication & Architecture Laboratory, Pusan National University, Pusan, Korea (1995)
- Dr. Young Si Kim, Software Engineering Department, ETRI (Electronics and Telecommunications Research Institute), Taejeon, Korea (1995 - 1996)
- Dr. Vijay Gehlot, Visiting Postdoc (1995-1996)
- Prof. Soon Ju Kang, School of EECS, Kyungpook National University, Deague, Korea (May 2000 - May 2002, Feb 2007 - Feb 2008)
- Prof. Jin-Young Choi, Department of Computer Science and Engineering, Korea University, Seoul, Korea (Sep 2002 - Aug 2003, Aug 2009 - Aug 2010)
- Prof. Moon-kun Lee, Department of Computer Science, Chon-buk National University, Chon-buk, Chon-ju City, Korea. (Jan 2003 - May 2004)
- Prof. Chang Byung-Mo, Department of Computer Science, Sookmyung Women's University, Seoul, Korea (Mar 2003 - Aug 2003)
- Prof. Myuhng-Joo Kim, Department of Information Security Engineering, Seoul Women's University, Seoul, Korea (Mar 2003 - Feb 2004)
- Prof. NakUn Seong, Department of Computer Science, Kyungsung University, Busan, Korea (Mar 2004 - Feb 2005)
- Prof. Hyeokman Kim, Department of Computer Science, Kookmin University, Seoul, Korea (Jan 2005 - Dec 2005)
- Prof. Woojin Lee, School of EECS, Kyungpook National University, Deague, Korea (Jan 2005 - Dec 2005)
- Dr. Jang Yeol Kim, KAERI (Korea Atomic Energy Research Institute), Korea (Sept 2007-Aug 2008)
- Prof. Yoon Joon Lee, Department of Computer Science, KAIST, Korea (Sept 2007-Feb 2008)
- Dr. Jeong Nyeo Kim, ETRI, Korea (Feb 2009 - Feb 2010)
- Yun Kyung Park, ETRI, Korea (June 2009 - June 2010)
- Prof. Young Woong Ko, Department of Computer Engineering, Hallym University, Chuncheon, Korea (July 2009 - July 2010)
- Prof. Myuhng-Joo Kim, Department of Information Security Engineering, Seoul Women's University, Seoul, Korea (Aug 2010 - July 2011)



- Dr. Paolo Masci, Queen Mary University of London (Oct 2012 - Nov 2012)
- Jeonghwan Ryu, Visiting Student, Korea University (Sep 2012 - Jan 2013)
- Dr. Chang Joon Park, ETRI, Korea (Aug 2012 - July 2013)
- Kieu My Phan, Visiting Student, KAIST, Korea (Sept 2013 - Feb 2015)
- Dr. Liang Cheng, Institute of Software, Chinese Academy of Sciences, Beijing, China (Jan 2014 - Dec 2015)
- Dr. Hyon Young Choi, Korea University (April 2014 - March 2016)
- Prof. Kyong Hoon Kim, Gyeongsang National University (GNU), Korea (Jan 2017 - Jan 2018)
- Prof. Kyungtae Kang, Hanyang University, Korea (Feb 2017 - Feb 2018)
- Dr. Alberto Huertas, Univeristy of Murcia, Spain (Oct 2017 - Feb 2018)
- Dr. Suk-Bok Lee, Hanyang University, Korea (Aug 2019 - Aug 2020)
- Prof. Kyung-Joon Park, DGIST, Korea (Aug 2021 - July 2022)

#### **Selected SEAS and CIS Activities**

- CIS Lecturers' Mentoring Committee (2014-2016)
- CIS Diversity Hiring Committee (2012-2013)
- SEAS Pender Award Committee (2012-2014)
- Senate Committee on Faculty and the Administration (SCOA) member (2011-2012)
- SEAS Faculty Council (2008-2010)
- SEAS Faculty Personnel Committee (2000-2001, 2005-2007)
- SEAS Search Committee for ESE Chair (2002-2004)
- CSE Undergraduate Curriculum Revision/Evaluation Committee (2002-2003, 2010-present)
- SEAS Committee on Intellectual Properties (2001)
- CIS Building Committee (1998-2000)
- CIS Undergraduate Curriculum Chair (1994-1997)
- Secretary of the SEAS Faculty (1993-1994)
- SEAS Staff Recognition Award Committee (1993-1994)
- CIS Faculty Recruiting Committee (1993-1994, Chair 1998-1999, 1999-2001, Chair 2002-2003, 2005, 2006, 2021)
- CIS WPE (Written Preliminary Exam) Committee (1984-1985, 1987-1988, Chair 1988, 1991-1992, 1992-2000, 2005-2007); WPE Revision Committee (1990-1991, 1993)
- Founding Faculty Advisor of the CSE Dining Philosophers (1989-1992) (Dining Philosophers were named after the famous concurrency problem with the same name taught in CSE 380 operating systems course.)

- Faculty Advisor of Student ACM Chapter (1984-1986, 1989-1992)
- Editor-in-Chief, CIS Newsletter (1991-1992)
- SEAS Search Committee for the Professorial Chair in Telecommunications (Jan 1986-Jan 1988)
- Department Colloquium Chair (1985-1986, 1991)
- Secretary of CIS Department (1985)
- Member of the SEAS Network Task Group (1984-1985)

#### **Technology Transfer - Consultant to Small Business Grants**

- STTR Phase I and II, Progressive Model Generation for Adaptive Resilient System Software, Gramma Tech, Inc., Ithaca, NY, Oleg Sokolsky (PI), Insup Lee, 2013-2015.
- STTR Phase I and II, "Simulation and Analysis Toolset for an Industry Standard Embedded System Specification Language," Fremont Associates, LLC, Camden, South Carolina. Sep 2004-Jun 2005, Sep 2005-Sep 2007.
- SBIR Phase I and II, "Software Tools for Formal Specification and Verification of Distributed Real-Time Systems," CCCC (Computer Command and Control Company), Philadelphia, 1993-1996.

#### **Patents**

- Sanjian Chen, James E. Weimer, Insup Lee. U.S. Patent No. 10,792,423 for METHODS, SYSTEMS, AND COMPUTER READABLE MEDIA FOR PHYSIOLOGY PARAMETER-INVARIANT MEAL DETECTION, Oct 6, 2020.
- Andrew King and Insup Lee. United States Patent No. 9,270,527 for Methods, Systems, and Computer Readable Media for Enabling Real-Time Guarantees in Publish-Subscribe Middleware Using Dynamically Reconfigurable Networks, Feb 23, 2016.

#### **Selected Invited Talks and Lectures since 2001**

1. Toward Assured Autonomous Medical Systems, Perelman School of Medicine (PSOM), University of Pennsylvania, Oct 17, 2022.
2. Toward Medical Autonomous Systems based on the Internet of Medical Things. KyungPook National University, June 13, 2022.
3. Assuring Confidence in AI-Based Autonomous Cyber-Physical Systems. Keynote Talk. International Workshop on AI Convergence Engineering, Gyeongsang National University (GNU), Korea, Jan 26, 2022
4. High-Assurance Autonomous Cyber-Physical Systems with Learning-Enabled Components. Invited Talk. Cyber CoI Working Group Meeting, OUSD (R&E), Dec 8, 2021.
5. High-Assurance Autonomous Cyber-Physical Systems with Learning-Enabled Components. Keynote Talk. Winter Conference, Computer Systems Society of Korean Information Science Society, Feb 2, 2021.
6. Toward Secure and Safe Learning-Enabled Autonomous Cyber-Physical Systems. Distinguished Seminar, Temple University, Feb 21, 2020.
7. Toward Secure and Safe Learning-Enabled Autonomous Cyber-Physical Systems. KAIST, Korea, Nov 4, 2019.

8. Internet of Medical Things and Computing for Health: Challenges, Trends, and Opportunities. Keynote Talk. iLDi International Symposium, Osaka, Japan, Nov 1, 2019.
9. The Internet of Medical Things: Personalizing Medicine in an Impersonal World, Keynote Talk, IEEE ISORC, Valencia, May 7, 2019.
10. The Internet of Medical Things: Personalizing Medicine in an Impersonal World, Perelman School of Medicine, University of Pennsylvania, Jan 17, 2019
11. Internet of Medical Things and Medical Cyber-Physical Systems: Challenges and Opportunities, CSE Department and I-CPIE seminar, Lehigh University, Dec 14, 2018.
12. Security of Cyber-Physical Systems: Challenges and Approaches, Keynote Talk, HoTSoS, April 4, 2017.
13. The Internet of Medical Things to Enable Medical Cyber-physical Systems, Distinguished Talk, EECS Colloquium, University of California at Irvine, Jan 13, 2017
14. The Internet of Medical Things to Enable Medical Cyber-Physical Systems, Distinguished Talk, William & Mary University, Nov 11, 2016.
15. Cyber-Physical Systems: Security and Privacy Challenges and Approaches, ETRI, Korea, Aug 22, 2016.
16. Platform-Based Automotive Safety Features: Research Challenges and Directions, Invited Talk, Int. Workshop on CPS, DIGST, Aug 16, 2016.
17. Internet of Medical Things to Enable Medical Cyber-Physical Systems. Keynote Talk, IEEE Conf. on Connected Health: Applications, Systems and Engineering Technology (CHASE), Washington, D.C., June 28, 2016.
18. Trust Management for Cyber-Physical Systems. Invited Talk, Social Trust in Autonomous Robots, RSS2016 Workshop, Ann Arbor, June 19, 2016.
19. Smart Medical Cyber-Physical Systems: Challenges and Directions. 2.5 Hour Tutorial, Smart Health Systems Workshop, Seoul, June 15, 2016.
20. Cyber-Physical Systems: Security and Privacy Challenges and Approaches. Invited Talk, Korea University, June 10, 2016.
21. Assuring Safety of Medical Cyber-Physical Systems, Invited Talk, Oxford University, May 20, 2016.
22. Toward Plug & Play Medical Cyber-Physical Systems, 3 hour tutorial, EMSIG School Denmark, Nov 10, 2015.
23. Parameter-Invariant Monitor Design for Cyber-Physical Systems. James Weimer, Oleg Sokolsky, Insup Lee. 3 Hour Tutorial at ESWeek, Oct 2015.
24. Towards a Logical Foundation for Assurance Arguments for Plug & Play Systems, Invited talk, VeriSure: Verification and Assurance Workshop, San Francisco, July 18, 2015.
25. Medical Cyber-Physical Systems for 21st Century Health Care, Keynote talk, KSEA NRC & KASBP Spring Symposium, Edison, NJ, June 12, 2015.
26. Attack-Resilient State Estimator and Sensor Fusion for CPS Security, Invited talk, Korea University, June 9, 2015.

27. Medical Application Platforms for On-Demand Medical Cyber-Physical Systems, Int. Workshop on CPS, DGIST, June 3, 2015.
28. Medication Application Platforms for On-Demand Medical Cyber-Physical Systems Keynote Talk, APRES Workshop, April 13, 2015
29. Compositional Scheduling and Real-Time Virtualization, Keynote Talk, Summer Embedded Technology Summit, Jeju, Korea, July 11, 2014.
30. Closing the Loop in Medical Cyber-Physical Systems: Safety Challenges, Distinguished Lecture, International Workshop on Cyber-Physical Systems, Seoul, July 9, 2014.
31. Assurance Cases for Life-Critical Cyber-Physical Systems, Tutorial, International Workshop on Cyber-Physical Systems, Seoul, July 8, 2014.
32. Closing the Loop in Medical Cyber-Physical Systems: Safety Challenges, Invited talk, Dr. M Project, KAIST, July 4, 2014.
33. Assuring the Safety of Closed-Loop Medical Systems, Keynote Talk, 2nd Smart Medical Information and Security Conference, Seoul, July 1, 2014.
34. Model-Based Development of Embedded Systems, Invited Seminar, Industrial Technology Institute, Samsung Electronics, Korea, June 30, 2014.
35. Assuring the Safety, Security, and Reliability of Medical Cyber-Physical Systems (MCPS), Neurosurgery Grand Rounds, SoM/UPHS, Philadelphia, March 27, 2014
36. Assurance Cases for Medical Devices, Keynote talk, Secure Software Research Center (SSRC) Workshop, Seoul, Nov 22, 2013.
37. Assuring the Safety and Security of Medical Cyber-Physical Systems, Plenary talk, Secure Software Research Center (SSRC) Opening Day, Korea University, Nov 19, 2013.
38. Compositional Schedulability Analysis and Real-Time Virtualization, Invited Talk, Symposium on Computer and Information Science, KSEA UKC2013, East Rutherford, NJ, Aug 9-10, 2013.
39. Challenges, Opportunities and Research Directions of Medical Cyber-Physical Systems, Universal Linkage for Top Research Advisor Program (ULTRA) Forum, Aug 9, 2013.
40. "Assuring the Safety of Medical Cyber-Physical Systems (MCPS)," Keynote talk, CSOS R&D Workshop, Kyungpook National University, Daegu, Korea, July 19, 2013.
41. "Assuring the Safety, Security, and Reliability of Medical Cyber-Physical Systems," Computer Science Distinguished Lecturer Series, Wayne State University, March 26, 2013.
42. "Assuring the Safety, Security, and Reliability of Medical-Device Cyber-Physical Systems (MDCPS)," Triangle Computer Science Distinguished Lecturer Series, Feb 25, 2013.
43. Invited Lecture, "Challenges and Research Directions in Medical Cyber-Physical Systems," Nano-Tera/ARTIST Summers School on Embedded Systems Design 2012 Aix les Bains, France, September 21, 2012
44. Keynote talk, "Challenges and Research Directions in Medical Cyber-Physical Systems," Workshop on Cyber-Physical Systems, DGIST at Tague, Aug 23, 2012.
45. Keynote talk, "Challenges and Research Directions in Medical Cyber-Physical Systems," Workshop on Cyber-Physical Systems, Networks, and Applications (CPSNA), Seoul, Aug 19, 2012.

46. Invited talk, "Assurance cases for Generic PCA reference implementation and beyond." IFIP Working Group 10.4 (Dependable Computing and Fault Tolerance), June 28-July 1, 2012.
47. Keynote Talk, "Challenges in Medical-Device Cyber-Physical Systems," Workshop on Open Resilient human-aware Cyber-Physical Systems (WORCS-2012), June 25, 2012
48. Distinguished Lecture, "Challenges and Research Directions in Medical Cyber-Physical Systems," DTC Science and Technology Innovators Series, University of Minnesota, May 1, 2012.
49. Tutorial, "Compositional Analysis of Cyber-Physical Systems," Linh T.X. Phan, Insup Lee, Oleg Sokolsky, Insik Shin, CPS Week, April 16, 2012.
50. FKII (The Federation of Korean Information Industries) mini-course, "Embedded Software for Life-Critical Application," Seoul, Feb 6-10, 2012.
51. Keynote talk, "Challenges and Research Directions in Medical Cyber Physical Systems," KOCSEA Symposium, San Jose, Dec 17, 2011.
52. Tutorial, "Compositional Analysis of Real-Time Embedded Systems", Linh T.X. Phan, Insup Lee, Oleg Sokolsky, Embedded Systems Week, Taipei, Oct 9, 2011.
53. Invited talk, "Medical Cyber-Physical Systems," 1st EU-US Workshop on Networked Monitoring & Control/CPS, Brussels, Belgium, June 28, 2011.
54. Plenary talk, "Cyber Physical Systems: 21st Century Embedded Systems," ISET 2011, Jeju, South Korea, to be give on May 20, 2011.
55. Keynote talk, "Compositional scheduling and analysis techniques for real-time embedded systems," CPS Day @DGIST, Deagu, South Korea, to be given on May 19, 2011.
56. Distinguished Lecture, "Medical Cyber Physical Systems," Department of Computer Science, Washington University, Dec 10, 2010.
57. "Computer and Internet: Past, Current, and Future," Korean-American Women's Association in Philadelphia (KAWAP), September 19, 2010.
58. Keynote talk, "Cyber Physical Systems: The Next Computing Revolution," ACACES International Summer School, La Mola, Spain, July 11, 2010. (<http://www.hipeac.net/summerschool/>)
59. "Medical Cyber Physical Systems," Special Session on CPS, DAC 2010, June 17, 2010.
60. Keynote talk, "Cyber Physical Systems," Cornerstone Ceremony, ADREAM, LAAS-CNRS, Toulouse, France, June 15, 2010. (<http://www.laas.fr/ADREAM>)
61. "Real-Time Challenges and Opportunities in HCMDSS," RTSS 09 Banquet talk, Dec 2, 2009.
62. "High-Confidence Medical Device Systems and Healthcare Systems," Inter. Workshop on Cyber-Physical Systems (WCPS'09): Closing the Loop, in Conjunction with ESWeek 2009, Oct 16, 2009.
63. "Cyber Physical Systems: The Next Computing Revolution," SNU, Korea, Sept 1, 2009.
64. "Cyber Physical Systems: The Next Computing Revolution," KAIST, Korea, Aug 31, 2009.
65. "Cyber Physical Systems: The Next Computing Revolution," Keynote Talk, UCK IST, Raleigh, July 18, 2009.
66. Invited Panelist in NITRD Strategic Forum, Federal Strategic Plan for the Networking and Information Technology Research and Development Program, DC, Feb 24-26, 2009. (webcast at <http://www.tvworldwide.com/events/nitrd/090225/>)

67. "Compositional Schedulability Analysis," McGill University, Oct 3, 2008.
68. "Cyber Physical Systems: The Next Computing Revolution," KIST (Korea Institute of Science and Technology), Korea, June 16, 2008.
69. "High-Confidence Automotive Cyber Physical Systems and Related Research at Penn," Hyundai Autonet, Korea, June 10, 2008.
70. "Cyber Physical Systems and Related Research at Penn," Invited Talk, ETRI, Korea, June 9, 2008.
71. "Compositional Schedulability Analysis and Cyber Physical Systems," Kyungpook National University, Korea, June 5, 2008.
72. "High-Confidence Medical Device Software and Systems: Trends, Challenges, and Opportunities," Invited Technical Talk, 10th Software Design for Medical Devices, Philadelphia, PA, May 15, 2008.
73. "Compositional Schedulability Analysis," Keynote talk, ITRC Meeting, Jeju Island, April 10, 2008.
74. "Compositional Schedulability Analysis and Cyber Physical Systems," KAIST, Korea, April 7, 2008.
75. "Cyber Physical Systems: The Next Computing Revolution," Sunmoon University, Korea, March 18, 2008.
76. "Compositional Schedulability Analysis: Challenges, Techniques, and Open Problems," Maalardalen University, Sweden, Feb 15, 2008.
77. "Network and Information Technology R&D in US," Department of Information and Communication of Korea, Nov 20, 2007.
78. "Compositional Analysis Techniques for Real-Time Embedded Systems," SNU, Nov 19, 2007.
79. "CPS: Cyber Physical Systems," Keynote talk, Workshop on Embedded Software in Non-IT Industry Seoul, Korea November 16, 2007
80. "High Confidence Medical-Device Software and Systems (HCMDSS): A CPS Application Domain," NSF Symposium on Cyber-Enabled Discovery and Innovation, RPI, Troy, NY, Sep 6, 2007.
81. "Compositional Techniques for Real-Time Embedded Systems," Keynote Talk, UKC 2007, Aug 2007.
82. "Model-Based Techniques for Validating Implementations," Drexel University, Jan 25, 2007.
83. "Opportunities and Challenges of Cyber Physical Systems (CPS), KOCSEA Workshop, Dec 2006.
84. "High Confidence Software and Systems: A Software Perspective," PCAST NIT Subcommittee Meeting, Aug 30, 2006.
85. "Model-Based Techniques for Validating Implementations," IEEE Montreal Chapter, McGill University, May 11, 2006.
86. "Model-based Techniques for Real-Time Embedded Systems," KAIST, April 27, 2006.
87. "Model-Based Techniques for Validating Implementations," Princeton University, April 14, 2006.
88. "Model-Based Techniques for Validating Implementations," University of Alabama-Birmingham, March 8, 2006.
89. "Model-based Development of Embedded Software," IEEE North Jersey Computer Chapter, Aug 2, 2005.

90. "Ubiquitous Realization: Challenges and Opportunities for Embedded Systems," Samsung SDS Thought Leadership Conference 2005, Keynote talk, April 13, 2005.
91. "Run-time verification and its application to IDS," Invited talk, Mini Symposium on Information Security, Northeastern University, Nov 9, 2004.
92. "Compositional Periodic Interface for Real-Time Components," Invited talk, Workshop on Software Engineering Tools: Compatibility and Integration, The Monterey Workshop Series, Vienna, Oct 4-6, 2004.
93. "Bridging the Gap between Specification and Implementation," Kunkook University, Korea, July 13, 2004.
94. "Model-based Development of Embedded Software," EECS, Kyungpook National University, Korea, July 8, 2004.
95. Moderator, Panel on "Major Push Needed in Distributed Real-Time Computing Research," ISORC, Vienna, May 14, 2004.
96. "A Compositional Framework for Real-Time Guarantees," Future Generation Software Architectures in the Automotive Domain: Connected Services in Mobile Networks, Workshop, San Diego, Jan 10-12, 2004.
97. "Model-Based Techniques for Validating Implementations at Run Time and Design Time," Drexel University, Nov 12, 2003.
98. "Checking Conformance to Component Interface Specification," Next TTA Workshop, Philadelphia, Oct 2003
99. "Formal Methods for Schedulability and Performance Analysis of Real-Time and Embedded Systems," one-day lecture at European Summer School on Embedded Systems 2003 in Vaseras, Oct 3, 2003.
100. Panelist, "Future Challenges and Advances in Real-Time Computing," RTAS, D.C., June, 2003.
101. "Formal Methods for CARA Development," FDA, Nov 2002.
102. Panelist, Next TTA Workshop, Grenoble, Oct, 2002.
103. "Model-Based Validation of Software," New Information Technology Age: The KSEA North-East Workshop & Special Event (NEWS 2002), Ocean City, MD, May 3-5, 2002.
104. "Specification-Based Techniques for Validating Programs at Run Time and Design Time," Villanova University, April 22, 2002.
105. Half-day tutorial on "Formal Methods for Timing and Schedlability Analysis of Embedded Systems," during ETAP '02, Grenoble, France, April 2002.
106. "Formal Methods for CARA Development," WRAIR, Nov 2001.
107. "Run-time Monitoring and Checking of Java Programs," ETRI, Aug 2001
108. "A Family of Resource-Bound Real-time Process Algebras," KAIST, Aug 2001
109. "A Family of Resource-Bound Real-time Process Algebras," Invited talk, *FORTE '01 (Formal Techniques for Networked and Distributed Systems)*, Cheju, Korea, Aug 28-31, 2001.

## Journals

1. Evaluating Alarm Classifiers with High-Confidence Data Programming. Sydney Pugh, Ivan Ruchkin, Christopher Bonafide, Sara DeMauro, Oleg Sokolsky, Insup Lee, James Weimer. *ACM Transactions on Computing for Healthcare*, 3(4), 2022.
2. Stacked LSTM based deep recurrent neural network with Kalman smoothing for blood glucose prediction. Md Fazle Rabby, Yazhou Tu, Md Imran Hossen, Insup Lee, Anthony S. Maida, Xiali Hei. *BMC Medical Informatics Decision Making*. 21(1): 101 (2021)
3. Lin Zhang, Pengyuan Lu, Fanxin Kong, Xin Chen, Oleg Sokolsky, Insup Lee: Real-time Attack-recovery for Cyber-physical Systems Using Linear-quadratic Regulator. *ACM Trans. Embed. Comput. Syst. (TECS)* 20(5s): 79:1-79:24 (2021)
4. Characterizing Glycemic Control and Sleep in Adults with Long-Standing Type 1 Diabetes and Hypoglycemia Unawareness Initiating Hybrid Closed Loop Insulin Delivery. Malone, Susan Kohl, Amy J. Peleckis, Laura Grunin, Gary Yu, Sooyong Jang, James Weimer, Insup Lee, Michael R. Rickels, and Namni Goel. *Journal of Diabetes Research* 2021 (2021).
5. Verifying the Safety of Autonomous Systems with Neural Network Controllers. Radoslav Ivanov, Taylor J. Carpenter, James Weimer, Rajeev Alur, George J. Pappas, Insup Lee *ACM Transactions on Embedded Computing Systems (TECS)*, 20 (1), 2020:1-26. (ACM TECS Best Award 2022)
6. Assured Run-time Monitoring and Planning: Towards Verification of Neural Networks for Safe Autonomous Operations. Esen Yel, Taylor Carpenter, Carmelo Di Franco, Radoslav Ivanov, Yiannis Kantaros, Insup Lee, James Weimer, Nicola Bezzo. *IEEE Robotics and Automation Magazine*, June 2020.
7. Ivan Ruchkin, Oleg Sokolsky, James Weimer, Tushar Hedaoo, Insup Lee. Compositional Probabilistic Analysis of Temporal Properties Over Stochastic Detectors. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 2020.
8. MAAuth-CAN: Masquerade-Attack-Proof Authentication for In-Vehicle Networks. Hyo Jin Jo, Jin Hyun Kim, Hyon-Young Choi, Wonsuk Choi, Dong Hoon Lee, and Insup Lee. *IEEE Intelligent Transportation Systems Transactions*. 69(2), 2204-2218, Feb 2020.
9. Determining Timing Parameters for the Code Generation from Platform-Independent Timed Models. Baekgyu Kim, Lu Feng, Oleg Sokolsky and Insup Lee. *ACM TCPS* 3(3): 28:1-28:32 (2019)
10. Intelligent and Dynamic Ransomware Spread Detection and Mitigation in Integrated Clinical Environments. Lorenzo Fernandez Maim 1, Alberto Huertas Celdrn, ngel L. Perales Gmez, Flix J. Garca Clemente, James Weimer and Insup Lee. *MDPI Sensors* 2019, 19(5), 1114; <https://doi.org/10.3390/s19051114>
11. Continuous Estimation Using Context-Dependent Discrete Measurements. Radoslav Ivanov, Nikolay Atanasov, Miroslav Pajic, James Weimer, George J. Pappas, Insup Lee. *IEEE Transactions on Automatic Control*, 64(1), 238-253, Jan 2019.
12. Yuchang Won, Buyeon Yu, Jaegeun Park, In-Hee Park, Haegeon Jeong, Jeanseong Baik, Kyungtae Kang, Insup Lee, Sang Hyuk Son, Kyung-Joon Park, Yongsoo Eun. An Attack-Resilient CPS Architecture for Hierarchical Control: A Case Study on Train Control Systems. *IEEE Computer* 51(11): 46-55 (2018)
13. Parameter-Invariant Monitor Design for Cyber Physical Systems. J. Weimer, R. Ivanov, S. Chen, A. Roederer, O. Sokolsky and I. Lee. *Proceedings of the IEEE*, 106 (1), Jan 2018. pp. 71-92.
14. Towards Overhead-Free Interface Theory for Compositional Hierarchical Real-Time Systems, Jin Hyun Kim, Kyong Hoon Kim, Arvind Easwaran, Insup Lee, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 37 (11), Nov 2018, pp. 2869-2880. (Also EMSOFT 2018)



15. MC-Fluid: Multi-core Fluid-based Mixed Criticality Scheduling. Jaewoo Lee, Saravanan Ramanathan, Kieu-My Phan, Arvind Easwaran, Insik Shin, and Insup Lee. *IEEE Transactions on Computers*, 67(4) April 2018. pp. 469-483.
16. Continuous Glucose Monitoring for Hypoglycemia Avoidance and Glucose Counterregulation in Long Standing Type 1 Diabetes. Michael R. Rickels, MD, MS, Amy J. Peleckis, CRNP, Cornelia Dalton-Bakes, BA, Joseph R. Naji, BS, Nina Ran, BS, Huong-Lan Nguyen, BS, Shannon O'Brien, CCNP, Sanjian Chen, PhD, Insup Lee, PhD, and Mark H. Schutta, MD. *Journal of Clinical Endocrinology & Metabolism (JCEM)*, 2017.
17. A process algebraic approach to the schedulability analysis and workload abstraction of hierarchical real-time systems. Junkil Park, Insup Lee, Oleg Sokolsky, Dae Yon Hwang, Sojin Ahn, Jin-Young Choi, and Inhye Kang. *Journal of Logical and Algebraic Methods in Programming*, Volume 92, November 2017, Pages 1-18.
18. Security of Cyber-Physical Systems in the Presence of Transient Sensor Faults. Junkil Park, Radoslav Ivanov, James Weimer, Miroslav Pajic, Sang Hyuk Son, Insup Lee. *ACM TCPS 1 (3)*, May 2017.
19. Design and Implementation of Attack-Resilient Cyber-Physical Systems. Miroslav Pajic, James Weimer, Nicola Bezzo, Oleg Sokolsky, George J. Pappas, Insup Lee. *IEEE Control Systems Magazine*, 2017.
20. Attack-Resilient State Estimation for Noisy Dynamical Systems, Miroslav Pajic, Insup Lee, George J. Pappas. *IEEE Trans. on Control of Networked Systems (TCNS)*, March 2017.
21. Prediction of Critical Pulmonary Shunts in Infants, Radoslav Ivanov, James Weimer, Allan Simpao, Mohamed Rehman, Insup Lee, *IEEE Transactions on Control Systems Technology (TCST)*, 24(6), 1936-1952, Nov 2016.
22. Data-driven Adaptive Safety Monitoring using Virtual Subjects in Medical Cyber-Physical Systems: A Glucose Control Case Study. Sanjian Chen, Oleg Sokolsky, James Weimer, and Insup Lee. *Journal of Computing Science and Engineering (JCSE)*, Vol 10 (3), pp.75-84, Sept 2016.(Invited Paper)
23. Physiology-invariant meal detection for type 1 diabetes, J Weimer, S Chen, A Peleckis, MR Rickels, I Lee, *Diabetes Technology & Therapeutics (DTT)* 18 (10), 616-624, 2016.
24. Attack-Resilient Sensor Fusion for Safety-Critical Cyber-Physical Systems. Radoslav Ivanov, Miroslav Pajic, Insup Lee. *ACM TECS* 15(1), article 21, 24 pages, 2016.
25. Parameter invariant design of medical alarms. J. Weimer, R. Ivanov, A. Roederer, S. Chen, and I. Lee. *IEEE Design & Test*, 32 (5), 2015.
26. Cache-Aware Compositional Analysis of Real-Time Multicore Virtualization Platforms, M. Xu, L.T.X. Phan, O. Sokolsky, S. Xi, C. Lu, C. Gill, I. Lee, *Real-Time Systems*, 51 (6), pp. 675-723, 2015.
27. Patient Infusion Pattern based Access Control Schemes for Wireless Insulin Pump System. Xiali Hei, Xiaojiang Du, Shan Lin, Insup Lee, Oleg Sokolsky. *IEEE Trans on Parallel and Distributed Systems*, Volume: PP, Issue: 99, Nov. 2014, pp: 1-14.
28. Alex Roederer, John H. Holmes, M.J. Smith, Insup Lee, Soojin Park. Prediction of significant vasospasm in aneurysmal subarachnoid hemorrhage using automated data. *Neurocrit Care*, vol 21(3) pp. 444-50, 2014.
29. Safety-critical Medical Device Development using the UPP2SF Model Translation Tool, Miroslav Pajic, Zhihao Jiang, Insup Lee, Oleg Sokolsky, Rahul Mangharam, *ACM TECS*, 13(4), July 2014.

30. Formal Synthesis of Application and Platform Behaviors of Embedded Software Systems, Jinhyun Kim, Inhye Kang, Jin-Young Choi, Insup Lee and Sugwon Kang, *Software & Systems Modeling*, Springer-Verlag, 2013. (available online, May 1, 2013)
31. Model-Driven Safety Analysis of Closed-Loop Medical Systems, M. Pajic, R. Mangharam, O. Sokolsky, D. Arney, J. Goldman and I. Lee, *IEEE Transactions on Industrial Informatics*, 10(1), Feb 2014, pages 3-16.
32. AS-CRED: Reputation and Alert Service for Inter-domain Routing. Jian Chang, Krishna K. Venkatasubramanian, Andrew G. West, Sampath Kannan, Insup Lee, Boon Thau Loo, and Oleg Sokolsky. *IEEE Systems Journal*, Special Issue on Security and Privacy in Complex Systems, 7(3): 396-409, Sept 2013.
33. Analyzing and Defending Against Web-based Malware. Jian Chang, Krishna K. Venkatasubramanian, Andrew G. West, Insup Lee. *ACM Computing Survey*, 45(4): 49:1-49:35, August 2013.
34. "A Comparison of Compositional Schedulability Analysis Techniques for Hierarchical Real-time Systems," Madhukar Anand, Sebastian Fischmeister, Insup Lee, *ACM TECS*, 13(1): 2:1-2:37, 2013.
35. State-based Scheduling with Tree Schedules: Analysis and Evaluation, Madhukar Anand, Sebastian Fischmeister, Insup Lee, Linh T.X. Phan, *Real-Time Systems*, 48(4): 430-462, 2012.
36. Challenges and Research Directions in Medical Cyber-Physical Systems, Insup Lee, Oleg Sokolsky, Sanjian Chen, John Hatchliff, Eunkyong Jee, BaekGyu Kim, Andrew King, Margaret Mullen-Fortino, Soojin Park, Alexander Roederer, and Krishna Venkatasubramanian, in *Special Issue on Cyber-Physical Systems*, *IEEE Proceedings*, 100(2), 75-90, Jan 2012. (Invited paper)
37. Special Issue on Cyber-Physical Systems [Scanning the Issue]. Radha Poovendran, Krishna Sampigethaya, Sandeep K. S. Gupta, Insup Lee, K. Venkatesh Prasad, David Corman, James L. Paunicka, *Proceedings of the IEEE* 100(1), pages 6-12, Jan 2012.
38. Introduction to the special section on runtime verification. Oleg Sokolsky, Klaus Havelund, Insup Lee. *STTT* 14(3), pages 243-247, 2012
39. "PADS: An approach to modeling resource demand and supply for the formal analysis of hierarchical scheduling," Anna Philippou, Insup Lee, and Oleg Sokolsky, *Theoretical Computer Science*, Volume 413, Issue 1, 2012, pp. 2-20.
40. "Limitations of Threshold-Based Brain Oxygen Monitoring for Seizure Detection," Soojin Park M.D., Alexander Roederer, Ram Mani M.D., Sarah Schmitt M.D., Peter LeRoux M.D., Lyle Ungar Ph.D., Insup Lee Ph.D., Scott Kasner M.D. *NEUROCRITICAL CARE: Volume 15, Issue 3 (2011)*, Page 469-476.
41. "Zero-Laxity based Real-Time Multiprocessor Scheduling," Jinkyu Lee, Arvind Easwaran, Insik Shin, Insup Lee, *Journal of Systems and Software* 84 (12), 2011, pp. 2324-2333.
42. "Trust in Collaborative Web Applications," Andrew West, Jian Chang, Krishna Venkatasubramanian, Insup Lee. *Future Generation Computer Systems*, 28(8), Feb 2011. pp. 1238-1251.
43. "Permission to Speak: A Logic for Access Control and Conformance," Nikhil Dinesh, Aravind Joshi, Insup Lee, Oleg Sokolsky, *JLAP (Journal of Logic and Algebraic Programming)* 80(1) 2011. p. 50-74
44. "UML Behavior Models of Real-time Embedded Software for Model-Driven Architecture," Jin Hyun Kim, Jin-Young Choi, Inhye Kang, Insup Lee, *Special Issue on Foundations and Practices of UML*, *J. UCS (Journal of Universal Computer Science)*, 16 (17), 2010.

45. "Timed and Resource-oriented Statecharts for Embedded Software," Jin Hyun Kim, Inhye Kang, Jin-Young Choi, Insup Lee, *IEEE Transactions on Industrial Informatics*, Vol 6, No 4, Nov 2010. pp. 568-578.
46. "Generating Reliable Code from Hybrid Systems Models", M. Anand, S. Fischmeister, Y. Hur, J. Kim, I. Lee, *IEEE Transactions on Computers*, Vol 59, No 9, Sep 2010. pp. 1281-1294.
47. "Model Checking of Real-Time Properties of Resource-Bound Process Algebra," Junkil Park, Jungjae Lee, Jin-Young Choi, Insup Lee, *IEICE Transactions on Fundamentals of Electronics Communications and Computer Sciences*. Vol. E92-A, No.11,Nov. 2009.
48. "Plug-and-Play for Medical Devices: Experiences from a Case Study," David Arney Sebastian Fischmeister, Julian M. Goldman, Insup Lee, Robert Trausmuth, *Biomedical Instrumentation & Technology*, 2009. pp. 313-317.
49. "Hardware Acceleration for Conditional State-based Communication Scheduling On Real-Time Ethernet", Sebastian Fischmeister, Robert Trausmuth, Insup Lee, *IEEE Transactions on Industrial Informatics*, Vol 5, No 3, Aug 2009.
50. "Optimal Virtual Cluster-based Multiprocessor Scheduling," Arvind Easwaran, Insik Shin, and Insup Lee, *Real-Time Systems*, Vol 43, No 1, 2009. pp. 25-59. (Special edition for ECRTS 2008)
51. "Dynamic Trust Management," Matt Blaze, Sampath Kannan, Insup Lee, Oleg Sokolsky, Jonathan Smith, Angelos D. Keromytis, and Wenke Lee, *IEEE Computer*, vol 42, no 2, Feb 2009, pp. 44-52.
52. "Compositional Real-Time Scheduling Framework with Periodic Model," Insik Shin and Insup Lee, *ACM TECS*, vol 7, no 3, April 2008. pp. 30:1-39
53. "A Design Framework for Real-Time Embedded Systems with Code Size and Energy Constraints," Insik Shin, Sheayun Lee, Woonseok Kim, Insup Lee, Sang L. Min, *ACM TECS*, vol 7, no 2, Feb 2008. pp. 18:1-27 pages
54. "Network-Code Machine: Programmable Real-Time Communication Schedules ," Sebastian Fischmeister, Oleg Sokolsky, Insup Lee, *IEEE Trans. on Computers*, Nov 2007, pp. 1505-1519.
55. "Resources in Process Algebra," Insup Lee, Anna Philippou, Oleg Sokolsky, *JLAP (Journal of Logic and Algebraic Programming)*, 72, 2007, pp. 98-122.
56. "High-Confidence Medical Device Software and Systems," Insup Lee, George Pappas, Rance Cleaveland, John Hatcliff, Bruce Krogh, Peter Lee, Harvey Rubin, Lui Sha, *IEEE Computer*, vol 39, no 4, April 2006. pp. 33-38.
57. "Compositional Modeling and Refinement for Hierarchical Hybrid Systems," Rajeev Alur, Radu Grosu, Insup Lee, Oleg Sokolsky, *JLAP (Journal of Logic and Algebraic Programming)* special issue on Hybrid Systems, Vol. 68, pp. 105-128, March 2006.
58. "Opportunities and Obligations for Physical Computing Systems," Jack Stankovic, Insup Lee, Al Mok, Raj Rajkumar, *IEEE Computer*, vol 38, no 11, Nov 2005, pp. 23-31.
59. "Formal Specifications and Analysis of the Computer Assisted Resuscitation Algorithm (CARA) Infusion Pump Control System," Rajeev Alur, David Arney, Elsa L. Gunter, Insup Lee, Jaime Lee, Wonhong Nam, Frederick Pearce, Steve Van Albert, Jam Jiaxiang Zhou, *Int. Journal in Software Tools for Technology Transfer (STTC)*, vol 4, 2004. (Special Issue on CARA)
60. "Java-MaC: a Rigorous Run-time Assurance Tool for Java Programs," M. Kim, S. Kannan, I. Lee, O. Sokolsky, M. Viswanathan, *Formal Methods in Systems Design (FMSD)*, vol 24 (2), March 2004.

61. "Hierarchical Modeling and Analysis of Embedded Systems," Rajeev Alur, Thao Dang, Joel Esposito, Yerang Hur, Franjo Ivančić, Vijay Kumar, Insup Lee, Pradyumna Mishra, George Pappas, and Oleg Sokolsky, *Proceedings of the IEEE*, vol 91, no 1, January 2003. (Special Issue on Hybrid Systems.)
62. R. Fierro, A. Das, J. Spletzer, Y. Hur, R. Alur, J. Esposito, G. Grudic, V. Kumar, I. Lee, J. P. Ostrowski, G. Pappas, J. Southall and C. J. Taylor, "A Framework and Architecture for Multirobot Coordination," *International Journal of Robotics Research*, vol 21, no 10-11, 2002, pp. 977-995.
63. "Process Algebraic Modeling and Analysis of Power-Aware Real-Time Systems," Insup Lee, Anna Philippou, and Oleg Sokolsky, *IEE Computing and Control Engineering Journal*, vol 13, no 4, 2002, pp. 180-188.
64. "Parametric Approach to the Specification and Analysis of Real-time Scheduling based on ACSR-VP," Hee-Hwan Kwak, Insup Lee, Oleg Sokolsky, *Science of Computer Programming*, Vol. 42, No. 1, 2002, pp. 49-60.
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66. "Hiding Resources that Can Fail," A. Philippou, O. Sokolsky, I. Lee, R. Cleaveland, and S.A. Smolka, *Information Processing Letters*, Volume 80, Issue 1, Oct 2001.
67. "Verisim: Formal Analysis of Network Simulations," K. Bhargavan, C.A. Gunter, M. Kim, I. Lee, D. Obradovic, O. Sokolsky, and M. Viswanathan, *IEEE Transactions on Software Engineering*, Vol. 28, No. 2, Feb 2002, pp. 129-145. (Special Issue on Selected Papers from Int. Symp. on Software Testing and Analysis, 2000.)
68. "Specification and Analysis of Real-Time Systems with PARAGON," Oleg Sokolsky, Insup Lee, and Hanène Ben-Abdallah, *Annals of Software Engineering*, 7, 1999, pp. 211-234.
69. "A Graphical Language for Specifying and Analyzing Real-Time Systems," Hanène Ben-Abdallah and Insup Lee, Special Issue of *Integrated Computer-Aided Engineering* on Real-time Engineering Systems, Vol 5, No 4, 1998, pp. 279-301.
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72. "Formal Verification, Testing and Checking of Real-Time Systems," Insup Lee, *ACM Computing Surveys*, 28, 4es, Dec 1996, pp. 182. (Special Issue: position statements on strategic directions in computing research)
73. "A Complete Axiomatization of Finite-state ACSR Processes," Patrice Brémont-Grégoire, Jin-Young Choi and Insup Lee, *Information and Computation*, 138 (2), Nov 1997, pp. 124-159.
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75. "An Efficient State Space Generation for the Analysis of Real-time Systems," Inhye Kang, Insup Lee and Young Si Kim, *IEEE Trans. of Software Engineering*, Vol 26, No 5, May 2000, pp. 453-477.
76. "VERSA: A Tool for the Specification and Analysis of Resource-Bound Real-Time Systems," Duncan Clarke, Insup Lee and Hong-liang Xie, *Journal of Computer and Software Engineering*, Special Issue on Formal Methods in Software Engineering, 3 (2), 1995, pp. 189-215. (Invited paper)

77. “A Process Algebraic Approach to the Specification and Analysis of Resource-Bound Real-Time Systems,” Insup Lee, Patrice Brémont-Grégoire and Richard Gerber, a special issue of the *Proceedings of the IEEE* on real-time systems, Jan 1994, pp. 158-171. (Invited paper)
78. “A Resource-Based Prioritized Bisimulation for Real-Time Systems,” Richard Gerber and Insup Lee, *Information and Computation*, Volume 113, Number 1, Aug 1994, pp. 102-142.
79. “RTC: Language Support for Real-Time Concurrency,” Victor Wolfe, Susan Davidson and Insup Lee, *Real-Time Systems*, Volume 5, Number 1, 1993, pp. 63-87.
80. “A Layered Approach to Automating the Verification of Real-Time Systems,” Richard Gerber and Insup Lee, *IEEE Trans. on Software Engineering*, Special Issue on Specification and Analysis of Real-Time Systems, vol 18, 9, Sept 1992, pp. 768-784.
81. “Timed Atomic Commitment,” Susan Davidson, Insup Lee and Victor Wolfe, *IEEE Transactions on Computers*, vol 40, 5, May 1991, pp. 573-583.
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83. “Synthesizing Minimum Total Expansion Topologies for Reconfigurable Interconnection Networks,” David Smitley and Insup Lee, *Journal of Parallel and Distributed Computing*, vol 7, 1, August 1989, pp. 178-199.
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85. “A Synthesis Algorithm for Reconfigurable Interconnection Networks,” Insup Lee and David Smitley, *IEEE Transactions on Computers*, June, 1988, pp. 691-699.
86. “Adding Time to Synchronous Process Communications,” Insup Lee and Susan Davidson, *IEEE Transactions on Computers*, August 1987, pp. 941-948.
87. “A Contextual Analysis of Pascal Programs,” Robert Cook and Insup Lee, *Software-Practice and Experience*, vol 12, 2, February 1982, pp. 195-203.

#### **Invited Conference, Magazine, and Workshop Papers**

88. Ivan Ruchkin, Matthew Cleaveland, Oleg Sokolsky, Insup Lee. Confidence Monitoring and Composition for Dynamic Assurance of Learning-Enabled Autonomous Systems - Position Paper. Formal Methods in Outer Space 2021: 137-146
89. A Retrospective Look at the Monitoring and Checking (MaC) Framework. Sampath Kannan, Moonzoo Kim, Insup Lee, Oleg Sokolsky, and Mahesh Viswanathan. RV 2019. (Invited paper for the 2019 RV Test-of-Time Award)
90. Flexible Monitor Deployment for Runtime Verification of Large Scale Software. Teng Zhang, Gregory Eakman, Insup Lee, Oleg Sokolsky. 8th International Symposium, ISoLA 2018, Runtime Verification Session, Limassol, Cyprus, November 5-9, 2018.
91. OpenICE-lite: Towards a Connectivity Platform for the Internet of Medical Things. Radoslav Ivanov, Hung Nguyen, James Weimer, Oleg Sokolsky, and Insup Lee, IEEE ISORC, May 2018.
92. Modeling Opportunities in mHealth Cyber-Physical Systems. Wendy Nilsen, Emre Ertin, Eric B. Hekler, Santosh Kumar, Insup Lee, Rahul Mangharam, Misha Pavel, James M. Rehg, William T. Riley, Daniel E. Rivera, Donna Spruijt-Metz. Mobile Health - Sensors, Analytic Methods, and Applications 2017: 443-453

93. Cache-aware Interfaces for Compositional Real-Time Systems. Linh Thi Xuan Phan, Meng Xu, and Insup Lee. CRTS, Dec 2015.
94. Medical Cyber-Physical Systems: The Early Years, Insup Lee, *IEEE Design & Test*, 32 (5) pp. 119-120, 2015.
95. Towards Assurance Cases for Resilient Control Systems, James Weimer and Oleg Sokolsky and Nicola Bezzo and Insup Lee, 2nd Conference on Cyber-Physical Systems, Networks, and Applications (CP-SNA), Hong Kong, Oct 2014.
96. Distributed Aspects of the Artificial Pancreas, Stephen D. Patek, Sanjian Chen, Patrick Keith-Hynes, Insup Lee, 51st Annual Allerton Conf. on Communication, Control and Computing, 2013.
97. “Assuring the Safety of On-Demand Medical Cyber-Physical Systems,” Andrew King, Lu Feng, Oleg Sokolsky, Insup Lee, 1st Conference on Cyber-Physical Systems, Networks, and Applications (CPSNA), Taipei, Aug 19-21, 2013.
98. “Security and Interoperable-Medical-Device Systems, Part 2,” Eugene Y. Vasserman, Krishna K. Venkatasubramanian, Oleg Sokolsky, and Insup Lee, *IEEE Security & Privacy*, 10(6), pp 70–73, Nov-Dec 2012.
99. “Security and Interoperable-Medical-Device Systems, Part 1,” Krishna K. Venkatasubramanian, Eugene Y. Vasserman, Oleg Sokolsky, and Insup Lee, *IEEE Security & Privacy*, 10(5), pp 61–63, Sept-Oct 2012.
100. Rationale and Architecture Principles for Medical Application Platforms, John Hatcliff, Andrew King, Insup Lee, Alasdair MacDonald, Anura Fernando, Michael Robkin, Eugene Vasserman, Sandy Weininger and Julian Goldman, ICCPS, CPSWeek, April 2012.
101. “Challenges in the Regulatory Approval of Medical Cyber-Physical Systems,” Oleg Sokolsky, Insup Lee, and Mats Heimdahl, Special session on software certification, EMSOFT, ESWeek, Oct 2011.
102. “Towards a Compositional Multi-Modal Framework for Adaptive Cyber-Physical Systems,” Linh T. X. Phan and Insup Lee. Proceedings of the 1st Workshop on Cyber- Physical Systems, Networks, and Applications, Toyama, Japan, Aug. 2011.
103. “Assurance Cases in Model-Driven Development of the Pacemaker Software,” Eunyoung Jee, Insup Lee and Oleg Sokolsky, 4th Int. Symposium On Leveraging Application of Formal Methods, Verification and Validation (ISoLA), Part II, LNCS 6416, pp 343-356, Amirandes, Heraclion, Crete, October 18-20, 2010. (Track on Certification of Software-Driven Medical Devices)
104. “Medical Cyber Physical Systems,” Insup Lee and Oleg Sokolsky, CPS Demystified Session, 47th Design Automation Conference (DAC), June 17, 2010.
105. “Cyber Physical Systems: The Next Computing Revolution,” Raj Rajkumar, Insup Lee, Lui Sha, and Jack Stankovic, CPS Demystified Session, 47th Design Automation Conference (DAC), June 17, 2010.
106. “Simulation Relations, Interface Complexity, and Resource Optimality for Real-Time Hierarchical Systems,” Insup Lee, Arvind Easwaran, Madhukar Anand, Linh Phan, and Oleg Sokolsky, Workshop on REconciling Performance with Predictability (RePP), Oct 15, 2009.
107. “Compositional Schedulability Analysis of Hierarchical Real-Time Systems,” Arvind Easwaran, Insup Lee, Insik Shin, and Oleg Sokolsky, *IEEE ISORC 2007* May 7-9, 2007, pp. 274-281.
108. “Semantically Rich Control Systems Design Tools ,” Madhukar Anand, Insup Lee, George Pappas, Oleg Sokolsky, Special Session on Hybrid Systems, 2006 CCA/CACSD/ISIC, Oct 2006, pp. 56-61.

109. "Code Generation from Hybrid Systems Models for Distributed Embedded Systems," Madhukar Anand, Jesung Kim, Insup Lee, *IEEE International Symposium on Object-Oriented Real-time distributed Computing (ISORC)*, Seattle, May 18-20, 2005, pp. 166-173.
110. "A Compositional Framework for Real-Time Embedded Systems," Insik Shin and Insup Lee, *Int. Service Availability Forum (ISAS 2005)*, Berlin, April 25-26, 2005.
111. "Automatic code generation from hybrid models for embedded applications," Jesung Kim and Insup Lee, *KSEA UKC 2004*, Raleigh/Durham, Aug 13-14, 2004.
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