Ivan Ruchkin

Email: iruchkin@ece.ufl.edu
Office phone: +1 (352) 273-2171
Websites: ivan.ece.ufl.edu, tea.ece.ufl.edu

Electrical and Computer Engineering Dept.
University of Florida
334B Larsen Hall, Gainesville, FL 32611

Research Interests

Modeling, analysis, verification, and monitoring for safe and trustworthy autonomous systems

Education

Carnegie Mellon University, School of Computer Science, Institute for Software Research
Doctor of Philosophy in Software Engineering
08/2011 – 11/2018
Dissertation: **Integration of Modeling Methods for Cyber-Physical Systems**
Committee: David Garlan (chair), André Platzer, Bruce Krogh, Dionisio de Niz, John Day (NASA JPL)

Carnegie Mellon University, School of Computer Science, Institute for Software Research
Master of Science in Software Engineering
08/2011 – 12/2014
GPA: 4.06/4.33

Lomonosov Moscow State University, Faculty of Computational Mathematics and Cybernetics, Computing Systems Lab. Moscow, Russia.
Specialist degree (with honors) in Applied Mathematics and Computer Science.
09/2006 – 06/2011
GPA: 5.0/5.0
Undergraduate thesis: Tool View Interface for Integrated Development Environments

Employment

University of Florida, Electrical and Computer Engineering Department, Gainesville, FL
08/2022 – present
Position: assistant professor
Leads the Trustworthy Engineered Autonomy (TEA) Lab. Performs research on safety assurance for autonomous systems. Teaches undergraduate and graduate courses in computer engineering. Supervises undergraduate, Masters, and PhD students.
Member of the Warren B. Nelms Institute for the Connected World and the AI2 Center.

University of Pennsylvania, PRECISE Center (Penn Research in Embedded Computing and Integrated Systems Engineering). Philadelphia, PA
12/2018 – 08/2022
Position: postdoctoral researcher
Led and contributed to research projects on modeling, analysis, and monitoring of learning-enabled cyber-physical systems. Co-taught courses and supported interdisciplinary collaboration across research groups. Supervised undergraduate, Masters, and PhD students.

Carnegie Mellon University, Institute for Software Research**.** Pittsburgh, PA
08/2011 – 11/2018
Position: research assistant
Led and contributed to research projects on modeling and analyzing complex systems. Served as a teaching assistant/guest instructor in several courses. Supervised undergraduate and Masters students.

Software Engineering Institute, High-Confidence Cyber-Physical Systems Group. Pittsburgh, PA
05/2013 – 08/2013
Position: research intern

Designed the analysis contracts framework for integration of algorithms in cyber-physical models.

NASA Jet Propulsion Laboratory, Multimission Ground System and Services Office (MGSS). Los Angeles, CA
05/2012 – 07/2012
Position: intern
Analyzed the gap between the software reuse process at MGSS and software product line practices. Proposed a plan for requirements, designs, and testing to improve reuse across projects.

Si-Trans Ltd, an international transport and logistics company**.** Moscow, Russia
04/2010 – 04/2011
Position: part-time software developer, UI designer.
Supported an existing enterprise resource management (ERM) system, elicited requirements and prototyped a UI for a new ERM system, made improvements in the development process.

Google Summer of Code program with Google and Thousand Parsec. Remote
05/2010 – 08/2010
Position: software developer, Google Summer of Code participant
Redesigned and developed a UI for a cross-platform client for Thousand Parsec – a 2D strategy videogame.

Lomonosov Moscow State University, Computing Systems Lab. Moscow, Russia.
09/2008 – 05/2010
Position: part-time software developer, UI designer, and analyst in a research & development project
Developed an OS-level client security application, designed and developed a dashboard for network security analytics.

Awards

Research

Best Contributed Theoretical Paper for paper "Data Generation with PROSPECT: a Probability Specification Tool" at the Winter Simulation Conference. 12/2021.

Frank Anger Memorial Award for crossover of ideas between the SIGSOFT (software engineering) and SIGBED (embedded systems) communities. 05/2017.

Best Paper Award for paper **"**Challenges in Physical Modeling for Adaptation of Cyber-Physical Systems" at the Third IEEE World Forum on the Internet of Things. 12/2016.

Gold Medal in the ACM Student Research Competition at MODELS 2015 for paper "Architectural and Analytic Integration of Cyber-Physical System Models." 10/2015.

ACM SIGSOFT Distinguished Paper Award for paper "Architectural Abstractions for Hybrid Programs" at the 18th International Symposium on Component-Based Software Engineering (CBSE), CompArch 2015. 05/2015.

Teaching

Special Recognition for Sustained Service in Teaching, School of Computer Science, Carnegie Mellon University. 04/2015.

Nominated for the **Graduate Student Teaching Award** (on two occasions), Carnegie Mellon University. 03/2014, 03/2015.

Misc

Heidelberg Laureate Forum Participant, selected among 200 young researchers worldwide to attend the Heidelberg Laureate Forum and meet recipients of top awards in mathematics and computer science (including the Turing Award). 09/2017.

First place in the Toastmasters Division 13D Table Topics (impromptu public speaking) contest. 10/2016.

Honors Degree (summa cum laude) in Applied Mathematics and Computer Science, Lomonosov Moscow State University. 06/2011.

	Student Athlete Award for contributions to the athletic community of Lomonosov Moscow State University. 09/2009 – 05/2011. **Level III Physics Award** in the Second Annual Lomonosov State School Olympiad. 04/2006.
Student and travel funding	*Penn Undegraduate Research Mentorship* (**PURM**) Grant for a summer research project 2020, 2021. NSF *student travel award* for the International Conference in Software Engineering (**ICSE)** 2017. Carnegie Mellon Provost Conference travel funding for the International Conference in Software Engineering (**ICSE)** 2017. Carnegie Mellon University's Graduate Student Assembly (GSA) *travel stipend* for the International Conference on Model Driven Engineering Languages and Systems (**MODELS**) 2015. ACM SIGSOFT *student travel award* for the Components and Architecture conference (**CompArch/WICSA**) 2015, ACM Special Interest Group on Software Engineering. ACM SIGBED *student travel award* for the International Conference on Embedded Software (**EMSOFT**) 2014, ACM Special Interest Group on Embedded Systems. Future of Software Engineering (**FuSE**) symposium *student travel grant*, University of Washington. 07/2013.

Publications

Journal	Sydney Pugh, Ivan Ruchkin, Christopher Bonafide, Sara DeMauro, Oleg Sokolsky, Insup Lee, James Weimer. **Evaluating Alarm Classifiers with High-Confidence Data Programming**. In ACM Transactions on Computing for Healthcare (HEALTH), 2022.
Journal	Ankica Barišić, Jácome Cunha, Ivan Ruchkin, Ana Moreira, João Araújo, Moharram Challenger, Dušan Savić, Vasco Amaral. **Modelling Sustainability in Cyber-Physical Systems: A Systematic Mapping Study**. In submission, 2022.
Journal	Ankica Barišić, Ivan Ruchkin, Dušan Savić, Mustafa Abshir Mohamed, Rima Al-Ali, Letitia Li, Hana Mkaouar, Raheleh Eslampanah, Moharram Challenger, Dominique Blouin, Oksana Nikiforova, Antonio Cicchetti. **Multi-Paradigm Modeling for Cyber–Physical Systems: A Systematic Mapping Review**. In Journal of Systems and Software, vol. 183, 2021.
Journal	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 (TCAD), vol. 39, issue 11, 2020. In Proceedings of the International Conference on Embedded Software (EMSOFT).
Journal	Jonathan Aldrich, David Garlan, Christian Kästner, Claire Le Goues, Anahita Mohseni-Kabir, Ivan Ruchkin, Selva Samuel, Bradley Schmerl, Christopher Steven Timperley, Manuela Veloso, Ian Voysey, Joydeep Biswas, Arjun Guha, Jarrett Holtz, Javier Cámara, Pooyan Jamshidi. **Model-based adaptation for robotics software**. In IEEE Software, 2019.
Journal	Xiaokang Zhou, Albert Y Zomaya, Weimin Li, Ivan Ruchkin. **Cybermatics: Advanced strategy and technology for cyber-enabled systems and applications.** In Future Generation Computer Systems (FGCS), vol. 79, p. 1, 2018.

Journal	Akshay Rajhans, Ajinkya Bhave, Ivan Ruchkin, Bruce Krogh, David Garlan, Andre Platzer, Bradley Schmerl. **Supporting Heterogeneity in Cyber-Physical Systems Architectures**. In IEEE Transactions on Automatic Control (TAC), Vol. 59, issue 12, 2014.
Conference	Zhenjiang Mao, Carson Sobolewski, Ivan Ruchkin. **How Safe Am I Given What I See? Calibrated Prediction of Safety Chances for Image-Controlled Autonomy**. Preprint, in submission, 2023.
Conference	Souradeep Dutta, Michele Caprio, Vivian Lin, Matthew Cleaveland, Kuk Jin Jang, Ivan Ruchkin, Oleg Sokolsky, Insup Lee. **Distributionally Robust Statistical Verification with Imprecise Neural Networks**. Preprint, in submission, 2023.
Conference	Sydney Pugh, Ivan Ruchkin, Insup Lee, James Weimer. **Curating Naturally Adversarial Datasets for Trustworthy AI in Healthcare**. Preprint, in submission, 2023.
Conference	Pengyuan Lu, Ivan Ruchkin, Oleg Sokolsky, Insup Lee. **Causal Repair of Learning-Enabled Cyber-Physical Systems**. In Proceedings of the International Conference on Assured Autonomy (ICAA), Baltimore, Maryland, 2023.
Conference	Matthew Cleaveland, Oleg Sokolsky, Insup Lee, Ivan Ruchkin. **Conservative Safety Monitors of Stochastic Dynamical Systems**. In Proceedings of the NASA Formal Methods Symposium (NFM), Houston, Texas, May 2023.
Conference	Ivan Ruchkin, Matthew Cleaveland, Radoslav Ivanov, Pengyuan Lu, Taylor Carpenter, Oleg Sokolsky, Insup Lee. **Confidence Composition for Monitors of Verification Assumptions**. In Proceedings of the International Conference on Cyber-Physical Systems (ICCPS), Milan, Italy, 2022.
Conference	Matthew Cleaveland, Ivan Ruchkin, Oleg Sokolsky, Insup Lee. **Monotonic Safety for Scalable and Data-Efficient Probabilistic Safety Analysis**. In Proceedings of the International Conference on Cyber-Physical Systems (ICCPS), Milan, Italy, 2022.
Conference	Sydney Pugh, Ivan Ruchkin, Christopher Bonafide, Sara DeMauro, Oleg Sokolsky, Insup lee, James Weimer. **High-Confidence Data Programming for Evaluating Suppression of Physiological Alarms**. In Proceedings of the Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE), Washington, D.C., 2021.
Conference	Alan Ismaiel, Ivan Ruchkin, Jason Shu, Oleg Sokolsky, Insup Lee. **Data Generation with PROSPECT: a Probability Specification Tool**. In Proceedings of the Winter Simulation Conference (WinterSim), Phoenix, AZ, 2021. **Best Contributed Theoretical Paper.**
Conference	Ashutosh Pandey, Ivan Ruchkin, Bradley Schmerl, David Garlan**. Hybrid Planning Using Learning and Model Checking for Autonomous Systems**. In Proceedings of the International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS), Washington, DC, USA, 2020.
Conference	Ivan Ruchkin, Joshua Sunshine, Grant Iraci, Bradley Schmerl, David Garlan, **IPL: An Integration Property Language for Multi-Model Cyber-Physical Systems**. In Proceedings of the 22nd International Symposium on Formal Methods (FM), Oxford, UK, 2018.
Conference	Ashutosh Pandey, Ivan Ruchkin, Bradley Schmerl, Javier Camara. **Towards a Formal Framework for Hybrid Planning in Self-Adaptation**. In Proceedings of the 12th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS). Buenos Aires, Argentina, 2017.
Conference	Ivan Ruchkin, Bradley Schmerl, David Garlan. **Architectural Abstractions for Hybrid Programs**. In Proceedings of the 18th International Symposium on Component-Based

	Software Engineering (CBSE), Montreal, Canada, 2015. **ACM SIGSOFT Distinguished Paper Award**.
Conference	Ivan Ruchkin, Dionisio De Niz, Sagar Chaki, David Garlan. **Contract-Based Integration of Cyber-Physical Analyses**. In Proceedings of the 14th International Conference on Embedded Software (EMSOFT), New Delhi, India, 2014.
Conference	Ivan Ruchkin, Vladimir Prus. **Single-Window Integrated Development Environment** in Spring/Summer Young Researchers' Colloquium on Software Engineering (SYRCoSE'10), Nizhny Novgorod, Russia, 2010.
Workshop	Ivan Ruchkin, Matthew Cleaveland, Oleg Sokolsky, and Insup Lee. **Confidence Monitoring and Composition for Dynamic Assurance of Learning-Enabled Autonomous Systems.** In Formal Methods in Outer Space: Essays Dedicated to Klaus Havelund on the Occasion of His 65th Birthday, 2021.
Workshop	Danny Weyns, Tomas Bures, Radu Calinescu, Barnaby Craggs, John Fitzgerald, David Garlan, Bashar Nuseibeh, Liliana Pasquale, Awais Rashid, Ivan Ruchkin, Bradley Schmerl. **Six Software Engineering Principles for Smarter Cyber-Physical Systems**. In Proceedings of the 8th Workshop on Self-Improving System Integration (SISSY) (in conjunction with ACSOS 2021). Washington, D.C., 2021.
Workshop	Ivan Ruchkin, Selva Samuel, Bradley Schmerl, Amanda Rico, David Garlan. **Challenges in Physical Modeling for Adaptation of Cyber-Physical Systems**. In the First Workshop on Models at Runtime & Networked Control for Cyber Physical Systems (MARTCPS) (in conjunction with WF-IoT). Reston, VA, 2016. **The IEEE World Forum on the Internet of Things Best Paper Award**.
Workshop	Ivan Ruchkin. **Integration Beyond Components and Models: Research Challenges and Directions**. In Proceedings of the 3th Architecture Centric Virtual Integration Workshop (ACVI) (in conjunction with WICSA/CompArch). Venice, Italy, 2016.
Workshop	Ivan Ruchkin, Ashwini Rao, Dionisio De Niz, Sagar Chaki, David Garlan. **Eliminating Inter-Domain Vulnerabilities in Cyber-Physical Systems: An Analysis Contracts Approach.** In the First ACM Workshop on Cyber-Physical Systems Security and Privacy (CPS-SPC) (in conjunction with CCS). Denver, CO, 2015.
Workshop	Ivan Ruchkin, Bradley Schmerl, David Garlan. **Analytic Dependency Loops in Architectural Models of Cyber-Physical Systems**. In the 8th International Workshop on Model-based Architecting of Cyber-Physical and Embedded Systems (ACES-MB) (in conjunction with MODELS). Ottawa, Canada, 2015.
Workshop	Ivan Ruchkin, Dionisio De Niz, Sagar Chaki, David Garlan. **ACTIVE: A Tool for Integrating Analysis Contracts**. In Proceedings of the 5th Analytic Virtual Integration of Cyber-Physical Systems (AVICPS) (in conjunction with RTSS) Workshop, Rome, Italy, 2014.
Workshop	David Garlan, Vishal Dwivedi, Ivan Ruchkin, Bradley Schmerl. **Foundations and Tools for End-User Architecting**, in 17th Monterey Workshop on Development, Operation and Management of Large-Scale Complex IT Systems, Oxford, UK, 2012.
Other	Ankica Barišić, Antonio Cicchetti, Ivan Ruchkin, Dominique Blouin. **Literature Classification Data for a Systematic Mapping Study on Multi-Paradigm Modeling for Cyber-Physical Systems**. In Archive ouverte HAL, 2021.
Other	Ivan Ruchkin. **Integration of Modeling Methods for Cyber-Physical Systems**. PhD Thesis, Carnegie Mellon University, 2019.
Other	Xiaokang Zhou, Guangquan Xu, Jianhua Ma, Ivan Ruchkin. **Scalable Platforms and Advanced Algorithms for IoT and Cyber-enabled Applications**. Editorial for the Elsevier Journal of Parallel and Distributed Computing (JPDC), Vol. 118, part 1, 2018.

Other	Tomas Bures, Danny Weyns, Bradley Schmerl, Eduardo Tovar, Eric Boden, Thomas Gabor, Ilias Gerostathopoulos, Pragya Gupta, Eunsuk Kang, Alessia Knauss, Pankesh Patel, Awais Rashid, Ivan Ruchkin, Roykrong Sukkerd, Christos Tsigkanos. **Software Engineering for Smart Cyber-Physical Systems: Challenges and Promising Solutions**. In the ACM SIGSOFT Software Engineering Notes (SEN), Vol. 42, Number 2, 2017.
Other	Amanda Rico, Ivan Ruchkin, Bradley Schmerl, David Garlan. **Hardware Power Modeling for TurtleBot**. Poster in the DARPA BRASS PI Meeting. Houston, TX, 2016.
Other	Ivan Ruchkin. **Architectural and Analytic Integration of Cyber-Physical System Models**. In the MODELS ACM Student Research Competition 2015. Ottawa, Canada. ACM SRC **Gold Medal Award**.
Other	Ivan Ruchkin. **Towards Integration of Modeling Methods for Cyber-Physical Systems**. In the MODELS Doctoral Symposium 2015. Ottawa, Canada.
Other	Ivan Ruchkin, Dionisio De Niz, Sagar Chaki, David Garlan. **Framework for Inter-Model Analysis of Cyber-Physical Systems**. Extended abstract and poster in 2nd Summer School on Cyber-Physical Systems, Grenoble, France, 2014.
Other	Ivan Ruchkin, Vishal Dwivedi, David Garlan, Bradley Schmerl. **Architectural Modeling of Ozone Widget Framework End-User Compositions**. Technical Report, Carnegie Mellon University, Pittsburgh, PA, 2014.
Other	Ivan Ruchkin, Stefan Mitsch, Akshay Rajhans, Jan-David Quesel, André Platzer, Bruce Krogh, David Garlan, Bradley Schmerl, Prashant Ramachandra, and Ken Butts. **An Architectural Approach to Heterogeneous Modeling and Verification of CPS**. Poster and extended abstract in the Fourth Annual Cyber-Physical Systems Principal Investigators Meeting, Arlington, VA, 2013.

Teaching

Teaching education	**First-Year Faculty Training Academy.** A half-semester course in state-of-the-art teaching methods for newly joining faculty, Center for Teaching Excellence (CTE), University of Floridy. Fall 2022. **Future Faculty Program**, the Eberly Center for Teaching Excellence and Educational Innovation, Carnegie Mellon University. Fall 2012 – Spring 2017. 20+ seminars on evidence-based teaching methods, two teaching observations, two teaching projects, and a reading group.
Course teaching	**Instructor** in EEL 4837: **Programming for Electrical Engineers II**, University of Florida, Spring 2023. Course redesign, lecturing, development of classroom activities and assessments. **Instructor** in EEL 6935: **Safe Autonomous Systems**, University of Florida, Fall 2022. Course design, lecturing, development of classroom activities, supervision of projects. **Co-instructor** in CIT 595: **Computer Systems Programming**, University of Pennsylvania, Spring 2021. Course design, preparation of lectures, facilitation of classroom activities, leading a team of 7 teaching assistants. **Co-instructor** in CIS 640: Advanced Topics in Software Systems: **Data-Driven IoT/Edge Computing**, University of Pennsylvania. Spring 2020. Course design, preparation of lectures and homework assignments, facilitation of classroom activities, supervision of student projects, grading.

Guest instructor in 15-313 **Foundations of Software Engineering**, Carnegie Mellon University. Fall 2014 and 2015.
Design of the software architecture unit, guest lectures, preparation of a homework assignment and a recitation.

Guest instructor in 17-651 **Models of Software Systems**, Carnegie Mellon University. Fall 2014.
Design of the Alloy Analyzer course unit: guest lectures, homework assignments, and recitations on the Alloy language.

Teaching assistant and **guest instructor** in 17-655 **Architectures for Software Systems**, Carnegie Mellon University. Spring 2013 and 2014.
Guest lectures and recitations, assignments redesign, grading, office hours.

Teaching assistant in 15-214 **Principles of Software Construction**, Carnegie Mellon University. Fall 2012.
Homework creation and grading, TA coordination, labs and recitations, office hours.

Mentoring

Mentor for:

- PhD student (Spring 2021-present) who worked on data programming.
- PhD student (Fall 2019-present) who worked on probabilistic safety analysis.
- Two undergraduate students (Summer 2020-Spring 2021, now at University of Pennsylvania) who developed a tool for data generation from probability specifications.
- Two Masters students (Summer 2019-Spring 2020, now at Oculii) who performed data collection for a simulated sonar of an underwater vehicle.
- An undergraduate student (Summer 2017, now at University of Buffalo) who implemented a language infrastructure for integration of models.
- An undergraduate student (Summer 2016, now at Ivanti) who performed data collection and developed power models for a service robot.
- A Masters (Fall 2013, now at Minio) and an undergraduate (Fall 2014, now at Rows) students who worked on architectural model generation with Alloy Analyzer.

Co-mentor for:

- Three undergraduate students (Summer 2021) who worked on design and robustness verification of a neural network for underwater sonar detection.
- An undergraduate student (Summer 2018, now at Michigan State University) who implemented hybrid planning for a drone swarm simulation.
- Two Masters students (Summer-Fall 2016, now at Voxel and Salesforce) who worked on robot actuation, navigation, and runtime architecture discovery.
- A *client* for a team of software engineering Masters students in their capstone project. Helped them learn about requirements, robotic frameworks, and testing.

Service

Conference organization

Student volunteer at the following conferences:

- ICSE (Buenos Aires, Argentina, 05/2017)
- CPS Week (Pittsburgh, PA, 04/2017)
- IRI (Pittsbrugh, PA, 07/2016)
- SPLASH (Pittsburgh, PA, 10/2015)
- MODELS (Ottawa, Canada, 09/2015)

University

Member of the **ECE Department's AI Committee**, University of Florida**.** August 2022 – present. Advancing the department's AI research, education, and outreach.

Research group coordinator for the ARO MURI project "Robust Concept Learning and Lifelong Adaptation Against Adversarial Attacks". Preparation of funding reports, organization of meetings, facilitation of working sessions and presentations. University of Pennsylvania, Summer 2020 – Summer 2022.

Judge in a **research contest** of undergraduate posters and talks, School of Engineering and Applied Science, University of Pennsylvania, Fall 2019.

Member of the **faculty search committee**, Institute for Software Research, Carnegie Mellon University, Pittsburgh, PA. Spring 2017.

Member of the Software Engineering **PhD student admission committee**, Institute for Software Research, Carnegie Mellon University, Pittsburgh, PA. Spring 2016.

Member of the Office of International Education's **foreign student advisory committee**, Carnegie Mellon University. 08/2014 – 11/2018.
Interviews with job candidates, advising on international student policy, representation in the CMU board meeting, outreach, organization of the foreign student orientation.

Member of the 2013 and 2014 **admission committee** for a joint Innopolis-Carnegie Mellon University Masters in Information Technology – Software Engineering program. 03/2014, 03/2013.
Evaluation of applications, interviews with candidates.

Member of the Software Engineering PhD program **curriculum committee**, Institute for Software Research, Carnegie Mellon University. 12/2012.
Representation of PhD student interests, review of changes to the PhD program requirements.

Peer Review

Journal reviewer
ACM Transactions on Cyber-Physical Systems (TCPS) 2023
Springer Supercomputing 2023
Springer International Journal on Software and System Modeling (SoSyM) 2022
ACM Transactions on Software Engineering and Methodology (TOSEM) 2021/2019
MDPI Computers 2021
MDPI Healthcare 2021
MDPI Applied Sciences 2021/2020
ACM Transactions on Computing for Healthcare (HEALTH) 2020
IEEE Transactions on Software Engineering (TSE) 2020
Springer Intl. Journal on Software Tools for Technology Transfer (STTT) 2020
MDPI Information Technology and Methodology 2020
MDPI Future Internet 2020
Wiley Concurrency and Computation: Practice and Experience (CCPE) 2018
Elsevier Annual Reviews in Control (ARC) 2017
Springer Empirical Software Engineering (EMSE) 2017
IEEE Software 2017
Elsevier Simulation Modeling Practice and Theory (SIMPAT) 2017
Elsevier Science of Computer Programming (SCP) 2017/2016
Elsevier Future Generation Computer Systems (FGCS) 2017

Program committee
AAAI Conference on Artificial Intelligence - Safe, Robust and Responsible AI 2024
Intl. Conference on Cyber-Physical Systems (ICCPS) 2023, 2024
Intl. Conference on Hybrid Systems: Computation and Control (HSCC) - Poster and Demo Session 2022
Intl. Workshop on Multi-Paradigm Modelling for Cyber-Physical Systems (MPM4CPS) 2021–2023
Annual Simulation Symposium (SpringSim) 2019, 2020
Intl. Workshop on Robotics Software Engineering (RoSE) 2018, 2019
Intl. Workshop on Software Engineering for Smart Cyber-Physical Systems (SEsCPS) 2019

Subreviewer
Conferences: HSCC 2021, DAC 2020, ICCPS 2019, SAFECOMP 2019, FORMATS 2019, SEH 2019, ICSA 2018, SEAMS 2018, SASO 2017, WICSA/CompArch 2016, APSEC 2016, WF-IoT 2016, ICSE 2015, ECSA 2015, ECSA 2014, ICSE 2012, WICSA 2012.

	Journals: IEEE Design & Test 2015, ACM Transactions on Software Engineering and Methodology (TOSEM) 2012.
Miscellaneous	**Judge** in the ENVISION Research Competition by Women in STEM, 2022. **Co-chair** of Dec/5 – Carnegie Mellon's CS graduate student organization. 08/2013 – 05/2014. Organization of networking events with tech companies: fundraising and operations. **Webmaster** for the Pittsburgh Pharaoh Hounds – a competitive long-distance running club. 05/2014 – 12/2018. Web design and maintenance; event support and promotion. **Captain** of the department's track and field team, Lomonosov Moscow State University. 09/2008 – 05/2011. Planning, outreach, and team organization.

Technical Skills

Software/systems engineering	● Requirements elicitation, architectural design and evaluation, object-oriented analysis and design with UML, object-oriented design patterns. ● Collaborative development: issue tracking systems Trac, Redmine, and Mantis, version control with Git, Subversion, and Mercurial. ● Modeling and verification: formal specification languages (Z, Alloy, JML), first-order and temporal logics, model checking and SMT solving (Promela/Spin, Z3, PRISM), theorem proving (KeYmaera, PVS).
Human studies and human-computer interaction	● Contextual inquiry, interview and study design, user interface design, usability evaluation and testing, cognitive modeling. ● User interface implementation with Qt, Swing/AWT, SWT, wxWidgets, Windows UI API.
Languages and technologies	● Java (J2SE), C/C++ (STL, Boost, Windows API, CLX, POSIX API, OpenGL) ● Python, Mathematica, Ruby, Bash/Zsh, Windows Shell ● MySQL, PostgreSQL, T-SQL ● Robot Operating System (ROS), Docker ● Eclipse platform: OSGi, RCP, EMF, XText ● Lisp, Prolog ● Intel x86 assembly language (basic) ● HTML, CSS, XML, XPath, XSLT

Miscellaneous

Languages	English – fluent, Russian – native, French – basic.
Memberships	IEEE Senior Member, ACM Member, CPS-VO Member.
Certificates & Examinations	● Mental Health First Aid training, 7/2017. ● Old Student in the S.N. Goenka Vipassana tradition (10-day course), 12/2016. ● Certified English-Russian Translator in Applied Mathematics and Informatics. Lomonosov Moscow State University, 2010.

Last updated: October 2023