Curriculum Vitæ for Dr. Neil T. Dantam

Personal Web Page
Lab Web Page
Google Scholar Profile
Github Profile

I. Personal Data

Name Neil Thomas Dantam

Affiliation Associate Professor
Department of Computer Science
Colorado School of Mines
Golden, CO 80401, USA

Address Golden, CO 80401

Citizenship USA
(Born: Anderson, Indiana)

II. Professional Preparation

2014-2017 Postdoctoral Appointment, Computer Science, Rice University

- **Advisors** Prof. Swarat Chaudhuri and Prof. Lydia Kavraki
- **Topic** *Integrated Task and Motion Planning for Robots*

2014 Ph.D. in Robotics, Georgia Institute of Technology

- **Advisor** Prof. Mike Stilman
- **Committee Chair** Prof. Henrik Christensen
- **Thesis Title** *A Linguistic Method for Robot Verification, Programming, and Control*

2008 B.S. in Computer Science,
B.S. in Mechanical Engineering (BSME),
Minor in Economics,
Purdue University, May 2008

2004 Indiana Academy for Science, Mathematics, and Humanities, May 2004

III. Publications

(Self in **bold**. Advisees in *italic*.)

Book Chapters

[1] **N. T. Dantam**, "Task and Motion Planning," in *Encyclopedia of Robotics*, M. H. Ang, O. Khatib, and B. Siciliano, Eds. Springer Berlin Heidelberg, 2020.

Refereed Journal Papers

[2] *S. Li* and **N. T. Dantam**, "Scaling Infeasibility Proofs via Concurrent, Codimension-one, Locally-updated Coxeter Triangulation," *IEEE Robotics and Automation Letters (RA-L)*, 2023.

[3] *S. Li* and **N. T. Dantam**, "A Sampling and Learning Framework to Prove Motion Planning Infeasibility," *The International Journal of Robotics Research (IJRR)*, 2023.

[4] *M. A. Schack*, J. G. Rogers, Q. Han, and **N. T. Dantam**, "Optimizing Non-Markovian Information Gain under Physics-based Communication Constraints," *IEEE Robotics and Automation Letters (RA-L)*, vol. 6, no. 3, pp. 4813–4819, 2021.

[5] **N. T. Dantam**, "Robust and efficient forward, differential, and inverse kinematics using dual quaternions," *The International Journal of Robotics Research (IJRR)*, vol. 40, no. 10-11, pp. 1087–1105, 2021.

[6] A. Wells, **N. T. Dantam**, A. Shrivastava, and L. E. Kavraki, "Learning Feasibility for Task and Motion Planning in Tabletop Environments," *IEEE Robotics and Automation Letters (RA-L)*, vol. 4, no. 2, pp. 1255–1262, 2019.

[7] F. Lagriffoul, **N. T. Dantam**, C. Garrett, A. Akbari, S. Srivastava, and L. E. Kavraki, "Platform-Independent Benchmarks for Task and Motion Planning," *IEEE Robotics and Automation Letters (RA-L)*, vol. 3, no. 4, pp. 3765–3772, 2018.

[8] **N. T. Dantam**, Z. K. Kingston, S. Chaudhuri, and L. E. Kavraki, "An Incremental Constraint-Based Framework for Task and Motion Planning," *The International Journal of Robotics Research (IJRR)*, vol. 37, no. 10, pp. 1134–1151, 2018.

[9] **N. T. Dantam**, S. Chaudhuri, and L. E. Kavraki, "The Task Motion Kit," *Robotics and Automation Magazine (RAM)*, vol. 25, no. 3, pp. 61–70, 2018.

[10] **N. T. Dantam**, K. Bøndergaard, M. A. Johansson, T. Furuholm, and L. E. Kavraki, "Unix Philosophy and the Real World: Control Software for Humanoid Robots," *Frontiers in Robotics and Artificial Intelligence, Research Topic on Software Architectures for Humanoid Robotics (FRAI)*, vol. 3, 2016.

[11] **N. T. Dantam**, D. M. Lofaro, A. Hereid, P. Oh, A. Ames, and M. Stilman, "The Ach IPC Library," *Robotics and Automation Magazine (RAM)*, vol. 22, no. 1, pp. 76–85, 2015.

[12] **N. T. Dantam** and M. Stilman, "The Motion Grammar: Analysis of a Linguistic Method for Robot Control," *Transactions on Robotics (T-RO)*, vol. 29, no. 3, pp. 704–718, 2013.

Refereed Conference Papers

[13] *J. McGowen*, I. Dagli, **N. T. Dantam**, and M. E. Belviranli, "Scheduling for cyber-physical systems with heterogeneous processing units under real-world constraints," in *International Conference on Supercomputing (ICS)*, ACM, 2024.

[14] *M. A. Schack*, J. G. Rogers, Q. Han, and **N. T. Dantam**, "Robot Team Data Collection with Anywhere Communication," in *International Conference on Intelligent Robots and Systems (IROS)*, (43.3% acceptance rate), IEEE/RSJ, 2023.

[15] J. Diller, **N. T. Dantam**, J. G. Rogers, and Q. Han, "Communication Jamming-Aware Robot Path Adaptation," in *International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT)*, IEEE, 2023.

[16] *S. Li*, S. Siva, T. Mott, T. Williams, H. Zhang, and **N. T. Dantam**, "Failure explanation in privacy-sensitive contexts: An integrated systems approach," in *International Conference on Robot and Human Interactive Communication (ROMAN)*, IEEE, 2023.

[17] *S. Li* and **N. T. Dantam**, "Sample-Driven Connectivity Learning for Motion Planning in Narrow Passages," in *International Conference on Robotics and Automation (ICRA)*, (43.0% acceptance rate), IEEE, 2023, pp. 5681–5687.

[18] *S. Li* and **N. T. Dantam**, "Exponential Convergence of Infeasibility Proofs for Kinematic Motion Planning," in *Algorithmic Foundations of Robotics XV (WAFR)*, (55.9% acceptance rate), Springer International Publishing, 2023, pp. 294–311.

[19] *K. Spevak*, Z. Han, T. Williams, and **N. T. Dantam**, "Givenness Hierarchy Informed Optimal Sentence Planning for Situated Human-Robot Interaction," in *International Conference on Intelligent Robots and Systems (IROS)*, (48% acceptance rate), IEEE/RSJ, 2022, pp. 6109–6115.

[20] R. B. Jackson, *S. Li*, S. B. Banisetty, S. Siva, H. Zhang, **N. T. Dantam**, and T. Williams, "An Integrated Approach to Context-Sensitive Moral Cognition in Robot Cognitive Architectures," in *International Conference on Intelligent Robots and Systems (IROS)*, (45% acceptance rate), **Best Paper Award on Cognitive Robotics Finalist**, IEEE/RSJ, 2021, pp. 1911–1918.

[21] *M. A. Schack*, J. G. Rogers, Q. Han, and **N. T. Dantam**, "Optimization-Based Robot Team Exploration Considering Attrition and Communication Constraints," in *International Conference on Intelligent Robots and Systems (IROS)*, (45% acceptance rate), IEEE/RSJ, 2021, pp. 5864–5871.

[22] *S. Li* and **N. T. Dantam**, "Learning Proofs of Motion Planning Infeasibility," in *Robotics: Science and Systems (RSS)*, (27% acceptance rate), 2021.

[23] *S. Li* and **N. T. Dantam**, "Towards General Infeasibility Proofs in Motion Planning," in *International Conference on Intelligent Robots and Systems (IROS)*, (47% acceptance rate), IEEE/RSJ, 2020, pp. 6704–6710.

[24] **N. T. Dantam**, "Practical Exponential Coordinates using Implicit Dual Quaternions," in *Algorithmic Foundations of Robotics XIII (WAFR)*, (52.6% acceptance rate), Springer International Publishing, 2020, pp. 639–655.

[25] T. Williams, N. Tran, J. Rands, and **N. T. Dantam**, "Augmented, Mixed, and Virtual Reality Enabling of Robot Deixis," in *Virtual, Augmented and Mixed Reality: Interaction, Navigation, Visualization, Embodiment, and Simulation (VAMR)*, J. Y. Chen and G. Fragomeni, Eds., 2018, pp. 257–275.

[26] **N. T. Dantam**, Z. K. Kingston, S. Chaudhuri, and L. E. Kavraki, "Incremental Task and Motion Planning: A Constraint-Based Approach," in *Robotics: Science and Systems (RSS)*, (20.6% acceptance rate), 2016.

[27] Y. Wang, **N. T. Dantam**, S. Chaudhuri, and L. E. Kavraki, "Task and motion policy synthesis as liveness games," in *International Conference on Automated Planning and Scheduling (ICAPS)*, (35.3% acceptance rate), AAAI, 2016.

[28] Z. K. Kingston, **N. T. Dantam**, and L. E. Kavraki, "Kinematically Constrained Workspace Control via Linear Optimization," in *International Conference on Humanoid Robots (Humanoids)*, IEEE, 2015, pp. 758–764.

[29] **N. T. Dantam**, H. B. Amor, H. Christensen, and M. Stilman, "Online Multi-Camera Registration for Bimanual Workspace Trajectories," in *International Conference on Humanoid Robots (Humanoids)*, (59% acceptance rate), **Best Paper Finalist, Mike Stilman Award Finalist**, IEEE, 2014, pp. 588–593.

[30] **N. T. Dantam** and M. Stilman, "Spherical Parabolic Blends for Robot Workspace Trajectories," in *International Conference on Intelligent Robots and Systems (IROS)*, (47% acceptance rate), IEEE, 2014, pp. 3624–3629.

[31] **N. T. Dantam**, H. B. Amor, H. Christensen, and M. Stilman, "Online Camera Registration for Robot Manipulation," in *International Symposium on Experimental Robotics (ISER)*, (87% acceptance rate), Springer, 2014, pp. 179–194.

[32] **N. T. Dantam**, A. Hereid, A. Ames, and M. Stilman, "Correct Software Synthesis for Stable Speed-Controlled Robotic Walking," in *Robotics: Science and Systems (RSS)*, (30% acceptance rate), 2013.

[33] M. Grey, **N. T. Dantam**, D. M. Lofaro, P. Oh, A. Bobick, M. Egerstedt, and M. Stilman, "Multi-Process Control Software for Humanoid Robots," in *IEEE International Conference on Technologies for Practical Robot Applications (TEPRA)*, (65% acceptance rate), 2013, pp. 190–195.

[34] **N. T. Dantam** and M. Stilman, "Robust and Efficient Communication for Real-Time Multi-Process Robot Software," in *International Conference on Humanoid Robots (Humanoids)*, (57.1% acceptance rate), IEEE, 2012, pp. 316–322.

[35] **N. T. Dantam**, I. Essa, and M. Stilman, "Linguistic Transfer of Human Assembly Tasks to Robots," in *Intelligent Robots and Systems (IROS)*, (45.1% acceptance rate), IEEE, 2012.

[36] **N. T. Dantam**, C. Nieto-Granda, H. Christensen, and M. Stilman, "Linguistic Composition of Semantic Maps and Hybrid Controllers," in *International Symposium on Experimental Robotics (ISER)*, 2012, pp. 699–714.

[37] **N. T. Dantam** and M. Stilman, "The Motion Grammar Calculus for Context-Free Hybrid Systems," in *American Control Conference (ACC)*, (55% acceptance rate), **Best Presentation in Session**, 2012, pp. 5294–5301.

[38] **N. T. Dantam** and M. Stilman, "The Motion Grammar: Linguistic Perception, Planning, and Control," in *Robotics: Science and Systems (RSS)*, (24.6% acceptance rate), 2011.

[39] **N. T. Dantam**, P. Kolhe, and M. Stilman, "The Motion Grammar for Physical Human-Robot Games," in *International Conference on Robotics and Automation (ICRA)*, (49% acceptance rate), **SAIC/Georgia Tech Achievement Award**, IEEE, 2011.

[40] P. Kolhe, **N. T. Dantam**, and M. Stilman, "Dynamic Pushing Strategies for Dynamically Stable Mobile Manipulators," in *International Conference on Robotics and Automation (ICRA)*, (41.2% acceptance rate), IEEE, 2010.

Workshop Papers

[41] *S. Li* and **N. T. Dantam**, "Learning explicit infeasibility from implicit configuration space connectivity," in *RSS Workshop on Implicit Representations for Robotic Manipulation*, 2022.

[42] *J. McGowen*, I. Dagli, M. E. Belviranli, and **N. T. Dantam**, "Representations for scheduling of heterogeneous computation to support motion planning," in *RSS Workshop on Implicit Representations for Robotic Manipulation*, 2022.

[43] *M. A. Schack* and **N. T. Dantam**, "Bayesian-Markov Feedback in Constraint-based Planning," in *ICRA Workshop on Human-Robot Teaming Beyond Human Operational Speeds*, 2019.

[44] **N. T. Dantam**, H. B. Amor, H. Christensen, and M. Stilman, "Fault Recovery in Logical Manipulation Policies," in *Workshop on Human versus Robot Grasping and Manipulation, RSS*, 2014.

[45] A. Rouhani, **N. T. Dantam**, and M. Stilman, "Software-synthesis via ll(*) for context-free robot programs," in *4th Workshop on Formal Methods for Robotics and Automation, RSS*, 2013.

[46] **N. T. Dantam**, M. Egerstedt, and M. Stilman, "Make Your Robot Talk Correctly: Deriving Models of Hybrid System," in *RSS Workshop on Grounding Human-Robot Dialog for Spatial Tasks*, 2011.

Technical Reports

[47] **N. T. Dantam**, S. Chaudhuri, and L. E. Kavraki, "The Task Motion Kit," Department of Computer Science, Rice University, Tech. Rep. TR16-12, 2016.

[48] **N. T. Dantam**, I. Essa, and M. Stilman, "Algorithms for Linguistic Robot Policy Inference from Demonstration of Assembly Tasks," Georgia Insitute of Technology, Tech. Rep. GT-GOLEM-2012-002, 2012.

[49] **N. T. Dantam** and M. Stilman, "Ach: IPC for Real-Time Robot Control," Georgia Insitute of Technology, Tech. Rep. GT-GOLEM-2011-003, 2011.

[50] **N. T. Dantam**, P. Kolhe, and M. Stilman, "Equations of Motion for Dynamically Stable Mobile Manipulators," College of Computing. Georgia Institute of Technology, Tech. Rep. GT-GOLEM-2010-002, 2010.

[51] **N. T. Dantam** and M. Stilman, "The Motion Grammar: Linguistic Perception, Planning, and Control," College of Computing. Georgia Institute of Technology, Tech. Rep. GT-GOLEM-2010-001, 2010.

IV. Professional Experience

2023- *Associate Professor*
2017-2023 *Assistant Professor*, Colorado School of Mines, Golden, CO

- Led development of interdisciplinary robotics graduate program
- Director of Dynamic Automata Lab

2014-2017 *Postdoctoral Research Associate*, Rice University, Houston, TX

- Independent research.
- Advised undergraduate students conducting research, leading to publication [28] at Humanoids 2015.
- Directed software development for planning and control on the Baxter and UR5 robots

2008-2014 *Research Assistant, Lab Manager*, Georgia Tech Humanoids Lab, Atlanta, GA

- Developed Real-Time IPC and control software for lab robots
- Maintained Lab organization, infrastructure, and computing
- Established LDAP/Kerberos/NFS services for Lab computing

Summer 2010 *Robotics Research Intern*, iRobot, Bedford, MA

- Improved control performance of 510 PackBot EOD arm by implementing Singularity-Robust Jacobian Inverse Kinematics (IK)
- Assisted transition of IK to production—included on all shipping PackBots
- Developed dynamic model of PackBot arm for workspace force estimation and weight sensing
- Developed prototype user display of PackBot arm jointspace and workspace forces
- Interfaced iRobot Aware2 and Willow Garage ROS software suites

Summer 2009 *Robotics Intern*, MIT Lincoln Laboratory, Lexington, MA

- Interfaced iRobot ATRV-Mini robot with Willow Garage ROS software suite
- Developed local, reactive motion planner for ATRV and PackBot mobile robots using Potential Fields
- Assisted system integration and demonstration

Summer 2008 *Software Engineering Intern*, MIT Lincoln Laboratory, Lexington, MA

- Worked with end users to evaluate software design requirements
- Developed web-based configuration tool for a Network Emulation Testbed using PHP/AJAX

Spring 2008 *Web Developer*, C-SPAN Archives, West Lafayette, IN

- Improved Flash web video player, adding features and increasing stability

Summer 2007 *Research Assistant*, Purdue University, West Lafayette, IN

- Designed CAN bus and Ethernet based remote drive-by-wire system for hydrostatic transmission vehicle
- Completed design of algorithm for conservative, on-the-fly, mostly-copying garbage collection

Summer 2006 *Software Engineering Intern*, Raytheon, Indianapolis, IN

- Evaluated Navy software on Windows NT, Linux, and HP-UX
- Revised trade study document on Navy software

2006 *Lab Instructor*, Purdue University, West Lafayette, IN

- Taught lab section of course in introductory C programming

Summer 2005 *IT Intern*, ContactSul, Camboriú, SC, Brazil

- Configured and deployed Debian GNU/Linux DNS, web, email, and file server
- Prototyped web-based order system

2004-2008 *Computer Science Tutor*, Purdue University, West Lafayette, IN

- Tutored undergraduates in courses covering C, C++, Java, and Compilers

2003-2004 *Software Developer*, Delaware Machinery, Muncie, IN

- Developed LabView Code Interface Node for network access
- Designed prototype web-based embedded tape reader emulator for CNC
- Other embedded and web-based Java programming

V. Teaching

Graduated Thesis Advisees

Aug 2023 Noah Fields. M.S. in Computer Science. Motion Planning with Task Scheduling in Heterogeneous Computing Systems

May 2023 Kevin Spevak. M.S. in Robotics. Givenness-Hierarchy-Informed Document Planning.

May 2023 Justin McGowen. M.S. in Computer Science. Resource- and Physical-Constraint-Aware Scheduling and Motion Planning, for Cyber-Physical Systems With Heterogeneous Processing Units.

May 2020 Kevin Barnard. M.S. in Robotics. Probabilistic Constraints For Optimization-Based Motion Planning.

Courses

2023
- Instructor. CSCI-400: Programming Languages. Colorado School of Mines.
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2022
- Instructor. CSCI-400: Programming Languages. Colorado School of Mines.
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2021
- Instructor. CSCI-400: Programming Languages. Colorado School of Mines.
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2020
- Instructor. CSCI-400: Programming Languages. Colorado School of Mines.
- Instructor. CSCI-534: Robot Planning and Manipulation. Colorado School of Mines.
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2019
- Instructor. CSCI-498/598: Robot Planning and Manipulation. Colorado School of Mines.
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2018
- Instructor. CSCI-498/598: Robot Planning and Manipulation. Colorado School of Mines.
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2017
- Instructor. CSCI-561: Theory of Computation. Colorado School of Mines.

2015
- Guest Lecturer. Algorithmic Robotics. Rice University.

2013
- Guest Lecturer. Robot Intelligence: Planning in Action. Georgia Tech.

2012
- Guest Lecturer. Robot Intelligence: Planning in Action. Georgia Tech.
- TA. Introduction to Perception and Robotics. Georgia Tech.

2011
- Volunteer. 2nd Grade Math Club. Hope-Hill Elementary School. Atlanta, GA.

2010
- TA. Introduction to Perception and Robotics. Georgia Tech.

2009
- TA. Building Humanoid Robots. Georgia Tech.

2006
- Lab Instructor. Introductory C Programming. Purdue University.

VI. Service and Community

Keynote / Plenary Presentations

- *Task-Motion Specification: Progress and Challenges*. International Conference on Robotics and Automation (ICRA), Workshop on Taking Reproducible Research in Robotics to the Mainstream. May 2019.
- *Performance and Evaluation of Task-Motion Planning*. Simulation Modeling and Programming for Autonomous Robots (SIMPAR 2018), Workshop on Combining Task And Motion Planning In The Frame Of Cloud Robotics.

- *Language, Logic, and Motion: Synthesizing Robot Software (invited).* International Conference on Humanoid Robots, Towards Humanoid Robots OS Workshop. November 2016.
- *Incremental Task and Motion Planning.* Robotics: Science and Systems, Workshop on Task and Motion Planning. June 2016.

Visiting Talks

- *Representations for Effective Robot Planning.* IRIM Fall Seminar Series, Georgia Institute of Technology. September 7, 2022.
- Abstractions in Robot Planning. Technische Universität Berlin (virtual). April 1, 2021.
- *Abstractions in Robot Planning.* Contextual Robotics Institute, University of California San Diego (virtual). February 22, 2021.
- *Task and Motion Planning: Algorithms, Implementation, and Evaluation.* University of Zagreb, Faculty of Electrical Engineering and Computing. December 18, 2019.
- Task and Motion Planning: Algorithms, Implementation, and Evaluation. University of Washington. October 18, 2019.
- *Task and Motion Planning: Algorithms, Implementation, and Evaluation.* University of New Mexico. March 3, 2019.
- *Task and Motion Planning: Algorithms, Implementation, and Evaluation.* Cornell University. October 09, 2018.
- *Grammars and Logic for Planning and Control.* Columbia University. March 27, 2014.

Program and Editorial Activities

2022
- Program Committee. Workshop on the Algorithmic Foundations of Robotics (WAFR 2022).

2021
- Associate Editor. International Conference on Robotics and Automation (ICRA 2022).
- Program Committee. AAAI. 2022.

2020
- Program Committee. Workshop on the Algorithmic Foundations of Robotics (WAFR 2020).
- Associate Editor. International Conference on Robotics and Automation (ICRA 2021).
- Program Committee. Workshop on the Algorithmic Foundations of Robotics (WAFR 2020).
- Program Committee. AAAI. 2021.

2019
- Associate Editor. Robotics and Automation Letters (RA-L).
- Associate Editor. International Conference on Robotics and Automation (ICRA 2020).
- Program Committee. International Conference on Planning and Scheduling (ICAPS 2019), special track on Robotics.
- Program Committee. AAAI. 2020.

- Program Committee. International Joint Conference on Artificial Intelligence (IJCAI 2019).
- Program Committee. International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2019).

2018
- Associate Editor. Robotics and Automation Letters (RA-L).
- Program Committee. International Joint Conference on Artificial Intelligence (IJCAI 2016).
- Program Committee and Respondent. Workshop on the Algorithmic Foundations of Robotics (WAFR 2018).
- Guest Editor. Robotics and Autonomous Systems, Special Issue on Semantic Policy Representation.

2017
- Editorial Board (Review Editor). Frontiers in Robotics and AI.
- Associate Editor. Robotics and Automation Letters (RA-L).
- Program Committee. International Joint Conference on Artificial Intelligence (IJCAI 2017).
- Program Committee. AAAI 2018.

2016
- Editorial Board (Review Editor). Frontiers in Robotics and AI.
- Associate Editor. Robotics and Automation Letters (RA-L).
- Program Committee. International Joint Conference on Artificial Intelligence (IJCAI 2016).

2015
- Editorial Board (Review Editor). Frontiers in Robotics and AI.
- Associate Editor. Robotics and Automation Letters (RA-L).

2014
- Editorial Board (Review Editor). Frontiers in Robotics and AI.

2012
- Program Committee. ROSCon.

Workshop and Group Organization

2023
- Organizer of Workshop on Task and Motion Planning: from Theory to Practice. International Conference on Intelligent Robots and Systems (IROS 2023).

2020
- Co-Organizer of Workshop on Learning (in) Task and Motion Planning. Robotics: Science and Systems (RSS 2020).

2019
- Organizer of Workshop on Robust Task and Motion Planning. Robotics: Science and Systems (RSS 2019).

2018
- Organizer of Workshop on Exhibition and Benchmarking of Task and Motion Planners. Robotics: Science and Systems (RSS 2018).
- Co-Organizer of Workshop on Semantic Policy and Action Representations. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2017
- Organizer of Workshop on Task and Motion Planning. Robotics: Science and Systems (RSS 2016).

- Co-Organizer of Workshop on Semantic Policy and Action Representations. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2016
- Organizer of Workshop on Task and Motion Planning. Robotics: Science and Systems (RSS 2016).

2015
- Co-Organizer of Workshop on Semantic Policy and Action Representations. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2014
- Organizer of Workshop on Policy Representation for Humanoid Robots, International Conference on Humanoid Robots (HUMANOIDS 2014).

2012
- Coordinator of ROS Special Interest Group on Inter-Process Communication.

Open Source

`TMKit` — Extensible Framework for Task–Motion Planning
http://tmkit.dyalab.org
Primary Developer

`Amino` — Robot utilities and modeling for planning and real-time control
http://amino.dyalab.org
Primary Developer

`Ach` — Real-Time messaging IPC for POSIX (userspace) and Linux (kernelspace)
https://github.com/golems/ach
Primary Developer

`Motion Grammar Kit` — Formal Language Tools for Robots
https://github.com/golems/motion-grammar-kit
Primary Developer

`Sycamore` — Fast, purely functional data structures in Common Lisp
https://github.com/ndantam/sycamore
Primary Developer

`S-Protobuf` — Google Protocol Buffers in Common Lisp
https://github.com/ndantam/s-protobuf
Primary Developer

`CL-Python` — https://common-lisp.net/project/clpython/
Bug fixes

`OMPL` — Open Motion Planning Library
https://ompl.kavrakilab.org/
Contributor:
- Bug fixes for race conditions and build scripts
- Integration tests
- Typing framework

Journal and Conference Reviews

2022
- Robotics: Science and Systems (RSS)
- Robotics and Automation Letters (RA-L)

2021
- Autonomous Robots (AURO)
- International Journal of Robotics Research (IJRR)
- Robotics and Automation Letters (RA-L)
- Robotics: Science and Systems (RSS)

2020
- Robotics and Automation Letters (RA-L)
- International Journal of Robotics Research (IJRR)
- Transactions on Robotics (T-RO)
- Autonomous Agents and Multi-Agent Systems (AGNT)
- ACM Computing Surveys

2019
- Transactions on Robotics (T-RO)
- Robotics and Automation Letters (RA-L)
- Journal for Autonomous Agents and Multi-Agent Systems (JAAMAS)
- Autonomous Robots (AURO)
- International Symposium on Robotics Research (ISRR)
- Robotics: Science and Systems (RSS)
- International Conference on Robotics and Automation (ICRA)
- Conference on Robot Learning (CoRL)

2018
- International Journal of Robotics Research (IJRR)
- Autonomous Robots (AURO)
- Journal of Experimental & Theoretical Artificial Intelligence (JETAI)
- Robotics and Automation Letters (RA-L)
- Transactions on Automation Science and Engineering (T-ASE)
- Transactions on Software Engineering (T-SE)
- International Conference on Robotics and Automation (ICRA)

2017
- Transactions on Robotics (T-RO)
- Robotics and Automation Letters (RA-L)
- Autonomous Robots (AURO)
- Journal of Experimental & Theoretical Artificial Intelligence
- International Symposium on Robotics Research (ISRR)
- International Conference on Robotics and Automation (ICRA)
- Intelligent Robots and Systems (IROS)
- International Conference on Humanoid Robots (Humanoids)

2016
- International Journal of Robotics Research (IJRR)

- Transactions on Robotics (T-RO)
- Robotics and Automation Letters (RA-L)
- Robotics and Automation Magazine (RAM)
- Frontiers in Robotics and AI (FRAI)
- Robotics: Science and Systems (RSS)
- International Conference on Robotics and Automation (ICRA)
- Intelligent Robots and Systems (IROS)
- Conference on Automation Science and Engineering (CASE)
- International Conference on Humanoid Robots (Humanoids)
- Symposium on Robot and Human Interactive Communication (ROMAN)
- Conference on Decision and Control (CDC)

2015
- International Journal of Robotics Research (IJRR)
- Transactions on Robotics (T-RO)
- Robotics and Automation Letters (RA-L)
- International Conference on Robotics and Automation (ICRA)
- Intelligent Robots and Systems (IROS)

2014
- Frontiers in Robotics and AI
- International Conference on Robotics and Automation (ICRA)
- Intelligent Robots and Systems (IROS)
- International Conference on Humanoid Robots (Humanoids)
- Multi-conference on Systems and Control (MSC)

2013
- Transactions on Interactive Intelligent Systems (TiiS)
- International Conference on Robotics and Automation (ICRA)
- Intelligent Robots and Systems (IROS)
- International Conference on Humanoid Robots (Humanoids)

2012
- Transactions on Robotics (T-RO)
- Discrete Event Dynamic Systems (DEDS)
- International Conference on Robotics and Automation (ICRA)
- Intelligent Robots and Systems (IROS)

2011
- 2011 International Conference on Robotics and Automation (ICRA)
- 2011 Conference on Automation Science and Engineering (CASE)

VII. Awards

Paper Awards

- [20] Best Paper Award on Cognitive Robotics Finalist – International Conference on Intelligent Robots and Systems, 2021
- [29] Best Paper Finalist – International Conference on Humanoid Robots, 2014
- [29] Mike Stilman Award Finalist – International Conference on Humanoid Robots, 2014
- [37] Best Presentation in Session – American Control Conference, 2012

To Advisees

- Matthew Schack, CMAPP Best Student Poster Runner-up, January 2024
- Sihui Li, RSS Pioneers, July 2023
- Matthew Schack, CMAPP Best Student Poster Runner-up, January 2023
- Sihui Li, CS@Mines Graduate Student Research Award, February 2022
- Justin McGowen, CMAPP Best Student Poster, February 2022

To Self

- [39] Achievement Award – SAIC - Georgia Tech Student Paper Competition, 2011
- President's Fellowship – Georgia Institute of Technology, 2008
- Poster Award – Purdue Undergraduate Research Symposium, 2007
- Academic Success Award – Purdue University, 2004-2008
- Indiana Resident Top Scholar – Purdue University, 2004-2008
- Dean's Engineering Scholar – Purdue University, 2004
- Chemistry Contest Scholarship – American Chemical Society, 2003
- Caltech Signature Award – Indiana Academy for Science, Mathematics, and Humanities, 2003