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Education

- 2007** CALIFORNIA INSTITUTE OF TECHNOLOGY
Doctor of Philosophy in Mechanical Engineering
Thesis: *Intelligent Information Gathering: Using Control for Sensing and Decision Making*
Advisors: Dr. Joel Burdick and Dr. Richard Murray
- 2002** CALIFORNIA INSTITUTE OF TECHNOLOGY
Master of Science in Mechanical Engineering
Advisors: Dr. Joel Burdick and Dr. Richard Murray
- 2001** CORNELL UNIVERSITY
Bachelor of Science in Mechanical and Aerospace Engineering
Advisor: Dr. Raffaello D'Andrea

Academic Positions

- 2011-** Assistant Professor, Naval Postgraduate School
Department of Systems Engineering
- 2008-2010** Research Assistant Professor, Naval Postgraduate School
Department of Operations Research
- 2007-2008** Postdoctoral Scholar, California Institute of Technology
Advisor: Dr. Joel Burdick

Academic Interests

- Autonomous systems and robotics
 - Multi-agent coordination for information gathering
 - Cooperative and non-cooperative autonomous systems modeling
- Modeling and simulation
 - Probabilistic search theory
 - Swarm algorithms and tactics
- Systems integration
 - Operations and tactical decision support for unmanned systems
 - Interface between autonomous systems and operations research
- Field experimentation
 - Integration of autonomy, networking, human systems, and logistics

Publications

Chapters in Books

- [3] Samuel E Buttrey et al. “Processing Robot and Sensor Log Files: Seeking a Circular Target”. In: *Data Science in R*. Chapman & Hall/CRC The R Series. Chapman and Hall/CRC, Mar. 2015, pp. 171–215. ISBN: 978-1-4822-3481-7. DOI: doi:10.1201/b18325-6. URL: <http://dx.doi.org/10.1201/b18325-6>.
- [2] Timothy H. Chung. “On Probabilistic Search Decisions under Searcher Motion Constraints”. In: *Algorithmic Foundation of Robotics VIII*. Ed. by Gregory S. Chirikjian et al. Vol. 57. Springer Tracts in Advanced Robotics. Berlin, Heidelberg: Springer Berlin Heidelberg, 2009, pp. 501–516. ISBN: 978-3-642-00311-0. DOI: 10.1007/978-3-642-00312-7. URL: <http://www.springerlink.com/content/fj4685p510r57826>.
- [1] Timothy H. Chung et al. “A Platform for Cooperative and Coordinated Control of Multiple Vehicles: The Caltech Multi-Vehicle Wireless Testbed”. In: *Proc. of the 2002 Conf. on Cooperative Control and Optimization*. Dec. 2002.

Refereed Journals

- [8] Timothy H Chung and Rachel T Silvestrini. “Modeling and analysis of exhaustive probabilistic search”. In: *Naval Research Logistics* 61.2 (2014), pp. 164–178.
- [7] Stefano Carpin et al. “Variable Resolution Search with Quadrotors: Theory and Practice”. In: *Journal of Field Robotics* 30.5 (Sept. 2013), pp. 685–701. ISSN: 15564959. DOI: 10.1002/rob.21468. URL: <http://doi.wiley.com/10.1002/rob.21468>.
- [6] Kyle Y. Lin et al. “A Graph Patrol Problem with Random Attack Times”. In: *Operations Research* 61.3 (2013), pp. 694–710.
- [5] Mark Muratore, Rachel T. Silvestrini, and Timothy H. Chung. “Simulation Analysis of UAV and Ground Teams for Surveillance and Interdiction”. In: *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology* OnlineFirs (2012).
- [4] Timothy H. Chung and Joel W. Burdick. “Analysis of Search Decision Making Using Probabilistic Search Strategies”. In: *IEEE Transactions on Robotics* 28.1 (Feb. 2012), pp. 132–144. ISSN: 1552-3098. DOI: 10.1109/TR0.2011.2170333. URL: http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=6059507.
- [3] Timothy H. Chung, Geoffrey A. Hollinger, and Volkan Isler. “Search and Pursuit-Evasion in Mobile Robotics: A Survey”. In: *Autonomous Robots* 31.4 (July 2011), pp. 299–316. ISSN: 0929-5593. DOI: 10.1007/s10514-011-9241-4. URL: <http://www.springerlink.com/content/gg5hj13543340742/>.
- [2] J. Ma, Timothy H. Chung, and J. Burdick. “A Probabilistic Framework for Object Search with 6-DOF Pose Estimation”. In: *The International Journal of Robotics Research* 30.10 (June 2011), pp. 1209–1228. ISSN: 0278-3649. DOI: 10.1177/0278364911410090. URL: <http://ijr.sagepub.com/cgi/content/abstract/0278364911410090v1><http://ijr.sagepub.com/cgi/doi/10.1177/0278364911410090>.
- [1] Vijay Gupta et al. “On a Stochastic Sensor Selection Algorithm with Applications in Sensor Scheduling and Sensor Coverage”. In: *Automatica* 42.2 (Feb. 2006), pp. 251–260. URL: <http://www.sciencedirect.com/science/article/B6V21-4HPKC1F-2/2/2b7c5806d2b29da739053b2d00fc2be6>.

Refereed Conference Papers

- [20] Michael A. Day et al. “Multi-UAV Software Systems and Simulation Architecture”. In: *2015 International Conference on Unmanned Aerial Systems*. Denver, CO: IEEE, 2015, pp. 426–435.
- [19] Nicola Basilico, Timothy H. Chung, and Stefano Carpin. “Distributed Online Patrolling with Multi-Agent Teams of Sentinels and Searchers”. In: *Distributed Autonomous Robotic Systems*. Daejeon, South Korea, 2014.
- [18] Thomas Dono and Timothy H. Chung. “Optimized Transit Planning and Landing of Aerial Robotic Swarms”. In: *Proc. of 2013 IEEE Int'l. Conf. on Robotics and Automation*. 2013.
- [17] Timothy Stevens and Timothy H. Chung. “Autonomous Search and Counter-Targeting using Levy Search Models”. In: *Proceedings of the IEEE International Conference on Robotics and Automation*. 2013, pp. 3953–3960.

- [16] Stefano Carpin, Timothy H. Chung, and Brian M. Sadler. “Theoretical Foundations of High-Speed Robot Team Deployment”. In: *Proceedings of the 2013 IEEE International Conference on Robotics and Automation*. 2013.
- [15] Ji Hyun Yang, Marek Kapolka, and Timothy H. Chung. “Autonomy balancing in a manned-unmanned teaming (MUT) swarm attack”. In: *2012 International Conference on Robot Intelligence Technology and Applications*. Gwangju, Korea, Dec. 2012.
- [14] Joses Yau and Timothy H. Chung. “Search-theoretic and ocean models for localizing drifting objects”. In: *Intelligent Robots and Systems (IROS), 2012 IEEE/RSJ International Conference on*. IEEE. 2012, pp. 4749–4755.
- [13] Stefano Carpin, Derek Burch, and Timothy H. Chung. “Searching for Multiple Targets using Probabilistic Quadrees”. In: *2011 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE. San Francisco, CA: IEEE, Sept. 2011, pp. 4536–4543. ISBN: 978-1-61284-456-5. DOI: 10.1109/IROS.2011.6094958. URL: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=6094958>.
- [12] Timothy H. Chung and Stefano Carpin. “Multiscale Search using Probabilistic Quadrees”. In: *2011 IEEE International Conference on Robotics and Automation*. Shanghai, China: IEEE, May 2011, pp. 2546–2553. ISBN: 978-1-61284-386-5. DOI: 10.1109/ICRA.2011.5980262. URL: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=5980262>.
- [11] Christian Klaus and Timothy H. Chung. “Optimized Graph Topologies for Probabilistic Search”. In: *2011 IEEE International Conference on Decision and Control*. Orlando, Florida, 2011.
- [10] Kenneth L. Byers, Timothy H. Chung, and Rachel T. Johnson. “Modeling and Analysis of Tactical Installation Protection Missions”. In: *Proceedings of the 2010 Winter Simulation Conference*. Ed. by B. Johansson et al. 2010, pp. 1347–1355.
- [9] T.H. Chung, Moshe Kress, and J.O. Royset. “Probabilistic search optimization and mission assignment for heterogeneous autonomous agents”. In: *2009 IEEE International Conference on Robotics and Automation*. IEEE, May 2009, pp. 939–945. ISBN: 978-1-4244-2788-8. DOI: 10.1109/ROBOT.2009.5152215. URL: http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5152215http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=5152215.
- [8] Timothy H. Chung and Joel W. Burdick. “Multi-agent probabilistic search in a sequential decision-theoretic framework”. In: *2008 IEEE International Conference on Robotics and Automation*. IEEE, May 2008, pp. 146–151. ISBN: 978-1-4244-1646-2. DOI: 10.1109/ROBOT.2008.4543200. URL: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=4543200>.
- [7] Timothy H. Chung and Joel W. Burdick. “A Decision-Making Framework for Control Strategies in Probabilistic Search”. In: *Proceedings 2007 IEEE International Conference on Robotics and Automation*. Rome, Italy: IEEE, Apr. 2007, pp. 4386–4393. ISBN: 1-4244-0602-1. DOI: 10.1109/ROBOT.2007.364155. URL: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=4209773>.
- [6] Timothy H. Chung, Joel W. Burdick, and Richard M. Murray. “A Decentralized Motion Coordination Strategy for Dynamic Target Tracking”. In: *Proc. of 2006 IEEE Int’l. Conf. on Robotics and Automation*. Orlando, Florida, May 2006, pp. 2416–2422.
- [5] Vijay Gupta et al. “On a Stochastic Algorithm for Sensor Scheduling”. In: *Proceedings of the 16th IFAC World Congress*. Prague, Czech Republic, July 2005.
- [4] Yasamin Mostofi et al. “Communication and Sensing Trade-Offs in Decentralized Mobile Sensor Networks: A Cross-Layer Design Approach”. In: *Proc. of 2005 IEEE Int’l. Conf. on Information Processing in Sensor Networks*. 2005.
- [3] Timothy H. Chung et al. “On a Decentralized Active Sensing Strategy using Mobile Sensor Platforms in a Network”. In: *Proceedings of the IEEE Conference on Decision and Control*. Paradise Island, Bahamas, 2004, pp. 1914–1919. URL: http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1430327.
- [2] Vijay Gupta et al. “Sensor Scheduling Algorithms Requiring Limited Computation”. In: *Proc. of 2004 IEEE Int’l. Conf. on Acoustics, Speech and Signal Processing*. Toronto, Canada, May 2004, pp. 825–828.
- [1] Timothy H. Chung et al. “Scheduling for Distributed Sensor Networks with Single Sensor Measurement Per Time Step”. In: *Proc. of 2004 IEEE Int’l. Conf. on Robotics and Automation*. New Orleans, LA, Apr. 2004, pp. 187–192.

Invited Conference Papers

- [4] Timothy H. Chung et al. “50 VS. 50 by 2015: Swarm Vs. Swarm UAV Live-Fly Competition at the Naval Postgraduate School”. In: *AUVSI North America*. Washington, D.C., 2013.
- [3] Oleg A. Yakimenko and Timothy H. Chung. “Extending Autonomy Capabilities for Unmanned Systems with CRUSER”. In: *Proceedings of the 28th Congress of the International Council of the Aeronautical Sciences (ICAS 2012)*. Brisbane, Australia, Sept. 2012.
- [2] Kevin D. Jones et al. “Cooperative Autonomy for the Masses - Fundamental Steps Toward Enabling Complex Multi-Asset Missions with Simple Point-and-Click Tasking”. In: *Proceedings of AUVSI Unmanned Systems North America 2011*. Washington, D.C., Aug. 2011.
- [1] Timothy H. Chung, Matthew Hasting, and Paul Evangelista. “Experimentation and Modeling of Soldier Target Search”. In: *Proceedings of the International Conference on Industrial Engineering, Theory, Applications, and Practice*. . Anaheim, California, 2009. ISBN: <http://hdl.handle.net/10945/36555>. URL: <https://calhoun.nps.edu/handle/10945/36555>.

Technical Reports

- [1] Don Brutzman et al. *Future Unmanned Naval Systems (FUNS) Wargame Competition 2011*. Technical Report. Monterey California: Naval Postgraduate School, July 2011.

Research Funding

- Office of Naval Research, *Swarm vs. Swarm Live-Fly Field Experimentation Program*, \$356,000; January 2015-December-2015; PI
- Office of Naval Research, *Hybrid Centralized and Decentralized Algorithms for Resource Optimization in Stochastic Environments*, \$85,000; January 2013-December 2015; PI
- Marine Corps Warfighting Laboratory, *Unmanned Systems Swarm Concepts and Capabilities Study*, \$50,000; October 2014-September 2015; PI
- Joint Warfare Analysis Center, *Kill-Chain Analysis for Countering Low-Cost Unmanned Aerial Systems*; \$25,000; October 2014-September 2015; PI
- Defense Advanced Research Projects Agency, *Modeling, Simulation, and Systems Integration for Swarm Search and Rescue*; \$100,000; July 2015-December 2015; PI
- Office of Naval Research, *Innovating for the Swarm vs. Swarm Grand Challenge Competition*; \$200,000; October 2014-March 2015; PI
- Office of Naval Research, *Cross-Cutting Initiatives in Robotics Education and Research*; \$500,000; October 2014-March 2015; PI
- Office of Naval Research, *Auto-Launch Projectiles to Initiate Swarms of UAVs*; \$34,700; June 2014-December 2014; PI
- Naval Studies Program (OPNAV N81), *Capability Modeling and Assessment for Offensive Swarm Unmanned Aerial Systems*; \$154,200; December 2014-November 2015; PI
- Defense Advanced Research Projects Agency, *Future ASW Concepts for Swarm Unmanned Systems*; \$137,000; January 2013-September 2014; PI
- US Coast Guard, Research and Development Center, *Enhanced Search and Rescue Effectiveness with UAV Swarm Search Capabilities*; \$185,000; October 2013-September 2014; PI
- Office of Naval Research, *Countering Adversarial Unmanned Systems: Live-Fly Experimentation with Aerial Combat Swarms*; \$200,000; October 2012-December 2014; PI
- LMCO Advanced Technologies Laboratory, *Integrating Human-Robot Team Interaction in Counter-Swarm Scenarios and SUMMIT*; \$35,000; October 2012-September 2013; PI

- Naval Postgraduate School, *Research Initiation Program*; \$552,000; January 2011-October 2012; PI
- Office of Naval Research, *Optimal Surveillance Patrol*; \$172,945; October 2010-December 2011; Co-PI
- Battelle, *Future Unmanned Naval Systems Wargame*; \$120,000; January 2011-October 2011; Co-PI
- US Special Operations Command, *Broad Area Situational Awareness for Surveillance and Interdiction Optimization*; \$42,580; October 2010-September 2011; PI
- Naval Warfare Development Command, *NPS Situational Awareness for Search and Interdiction Operations (SASIO) Decision Support and System Analysis Tools Efforts for JEFX 10-3/4*; \$60,000; October 2009-December 2010; PI
- Johns Hopkins University Applied Physics Laboratory, *Collaborative Initiatives for Layered Sensing Project*; \$17,500; January 2009-September 2009; PI

Teaching Experience

- **OA3602 - Search Theory and Detection:** Originally focused solely on anti-submarine warfare models, the course materials were modernized to address the changing and growing capabilities and technologies, e.g., unmanned systems, to conduct search and detection across all naval domains. Novel topics introduced include: multi-agent search tactics, search for adversarial targets, and novel concepts of employment for unattended or unmanned systems.
- **CS4313 - Advanced Robotic Systems:** This autonomous systems course was resurrected with a focus on leveraging open-source resources (e.g., Robot Operating System) for robotics education and robotic systems integration to accelerate exposure to state-of-the-art technologies in robotic platforms. Newly introduced topics include LIDAR and computer vision sensor modeling, particle filter-based state estimation techniques, and integration of physical and simulation environments for robotics.
- **SE3201/SE3202/SE3203 - Engineering Systems Conceptualization, Design, Implementation & Operation:** This sequence of classes has been revamped to provide longitudinal (i.e., over three sequential quarters) learning opportunities for students, incorporating design thinking methodologies with projects-based learning to address research projects of operational relevance to sponsors and/or stakeholders.
- **SE4960 - Network Concepts in Systems Engineering:** Developed as an entirely new course, this class explores the mathematical and computational constructs relevant to complex networks (e.g., social networks, epidemic networks, power networks) that offer insights into engineered systems-of-systems. The class is structured with a mix of lectures to highlight concepts, computational laboratory exercises to reinforce the concepts, and communal investigation and dissection of recent advances in the complex networks literature.
- **Short course on Robot Operating System:** Developed a sequence of six hands-on learning laboratories for students to become familiar with modern robotic systems development environments, tools, and equipment. Students learn basic programming constructs (e.g., using Python programming language), interact with actuators and sensors (e.g., servo motors and linear sensors), and develop an understanding of messaging handling and network protocols (e.g., pub-sub).

Mentoring and Supervision

Master of Science Students

- [37] Dylan Lau. “Investigation of Coordination Algorithms for Swarm Robotics Conducting Area Search”. Master of Science in Modeling, Virtual Environments, and Simulation. Naval Postgraduate School, Sept. 2015.
- [36] Shannon Zoch. “Distributed Greedy Geographic Forwarding Protocol for Flying Ad Hoc Swarm Networks”. Master of Science in Electrical and Computer Engineering. Naval Postgraduate School, Sept. 2015.
- [35] Cale Johnson et al. “Organic over-the-horizon targeting for the 2025 surface fleet”. Masters of Science in Systems Engineering Analysis. Naval Postgraduate School, June 2015. URL: <https://calhoun.nps.edu/handle/10945/45933>.
- [34] Scotty E Black. “The Missions, the Tactics, the Implementation: A Simulation for Aerial Combat Swarms”. Master of Science in Modeling, Virtual Environments, and Simulation. Naval Postgraduate School, June 2015.
- [33] Patrick Alan Livesay. “Investigation of Capabilities and Technologies Supporting Rapid UAV Launch System Development”. Master of Science in Systems Engineering. Naval Postgraduate School, June 2015.
- [32] Raymond Davis. “Mechanical Design and Optimization of Swarm-Capable UAV Launch Systems”. Master of Science in Systems Engineering. Naval Postgraduate School, June 2015.
- [31] Douglas McIntosh. “Preventing Encroachment by Hobby Grade Small Unmanned Aerial Systems”. Master of Science in Systems Engineering. Naval Postgraduate School, June 2015.
- [30] David Cummings. “Open Source Software in DOD Systems”. Master of Science in Systems Engineering. Naval Postgraduate School, June 2015.
- [29] Brenton Campbell. “Human robotic swarm interaction using an artificial physics approach”. Master of Science in Applied Physics. Naval Postgraduate School, Dec. 2014. URL: <https://calhoun.nps.edu/handle/10945/44531>.
- [28] Chee Siong Ong. “Logistics supply of the distributed air wing”. Master of Science in in Modeling, Virtual Environments, and Simulation. Naval Postgraduate School, Sept. 2014. URL: <https://calhoun.nps.edu/handle/10945/43969>.
- [27] Robert B. Davis. “Applying Cooperative Localization to swarm UAVs using an extended Kalman Filter”. Master of Science in Computer Science. Naval Postgraduate School, Sept. 2014. URL: <https://calhoun.nps.edu/handle/10945/43900>.
- [26] Joong Yang Lee. “Expanded kill chain analysis of manned-unmanned teaming for future strike operations”. Master of Science in Systems Engineering. Naval Postgraduate School, Sept. 2014. URL: <https://calhoun.nps.edu/handle/10945/43944>.
- [25] Blake M. Wanier. “A modular simulation framework for assessing swarm search models”. Master of Science in Operations Research. Naval Postgraduate School, Sept. 2014. URL: <https://calhoun.nps.edu/handle/10945/44027>.
- [24] Nicole R. Ramos. “Assessment of vision-based target detection and classification solutions using an indoor aerial robot”. Master of Science in Systems Engineering. Naval Postgraduate School, Sept. 2014. URL: <https://calhoun.nps.edu/handle/10945/43984>.
- [23] Vincent Naccarato et al. “The distributed air wing”. Master of Science in Systems Engineering Analysis. Naval Postgraduate School, June 2014. URL: <https://calhoun.nps.edu/handle/10945/42717>.
- [22] James B. Zorn. “A systems engineering analysis of unmanned maritime systems for U.S. Coast Guard missions”. Master of Science in Systems Engineering. Naval Postgraduate School, June 2013. URL: <https://calhoun.nps.edu/handle/10945/34766>.
- [21] Uwe Gaertner. “UAV Swarm Tactics: An Agent-based Simulation and Markov Process Analysis”. Master of Science in Operations Research. Naval Postgraduate School, 2013.
- [20] Mathiew Blandin et al. “2024 Unmanned Undersea Warfare Concept”. Master of Science in Systems Engineering Analysis. Naval Postgraduate School, June 2013. URL: <https://calhoun.nps.edu/handle/10945/34733>.
- [19] Timothy S. Stevens. “Analysis of Nondeterministic Search Patterns for Minimization of UAV Counter-Targeting”. Master of Science In Operations Research. Naval Postgraduate School, Mar. 2013. URL: <https://calhoun.nps.edu/handle/10945/32905>.

- [18] Michael Frank Smith. “Assessment of the Utility of Submarine Launched-and-Operated Unmanned Aerial Systems”. Master of Science in Systems Engineering Analysis. Naval Postgraduate School, Dec. 2012.
- [17] Eric Shuey and Mika Shuey. “Modeling and simulation for a surf zone robot”. Master of Science in Applied Physics. Naval Postgraduate School, Dec. 2012. URL: <https://calhoun.nps.edu/handle/10945/27905>.
- [16] Umit Soylu. “Multi-Target Tracking by Aerial Battle Bots for Swarm vs. Swarm Systems”. Master of Science in Computer Science. Naval Postgraduate School, Sept. 2012. URL: <https://calhoun.nps.edu/handle/10945/17462>.
- [15] Timothy W. Rochholz. “Wave-Powered Unmanned Surface Vehicle as a Station-Keeping Gateway Node for Undersea Distributed Networks”. Master of Science in Applied Physics. Naval Postgraduate School, Sept. 2012. URL: <https://calhoun.nps.edu/handle/10945/17448>.
- [14] Thomas Dono. “Efficient Landing of Autonomous UAV Swarms on Multiple Moving Platforms”. Master of Science in Operations Research. Naval Postgraduate School, June 2012. URL: <https://calhoun.nps.edu/handle/10945/7331>.
- [13] Meng Wee Joses Yau. “Localization of Surface or Near-Surface Drifting Mines for Unmanned Systems in the Persian Gulf”. Master of Science in Physical Oceanography. Naval Postgraduate School, June 2012. URL: <https://calhoun.nps.edu/handle/10945/7436>.
- [12] Loren Jacobi et al. “Tailorable Remote Unmanned Combat Craft”. en_US. Master of Science in Systems Engineering Analysis. Naval Postgraduate School, June 2012. URL: <https://calhoun.nps.edu/handle/10945/15434>.
- [11] Riadh Hajri. “Analysis and Design of UAV-UAV Detection and Tracking Systems”. Master of Science in Systems Technology. Naval Postgraduate School, June 2012. URL: <https://calhoun.nps.edu/handle/10945/7351>.
- [10] Michael Day. “Multi-Agent Task Negotiation Among UAVs to Defend Against Swarm Attacks”. Master of Science in Computer Science. Naval Postgraduate School, Mar. 2012. URL: <https://calhoun.nps.edu/handle/10945/6784>.
- [9] Mejd Ben Ardhaoui. “Implementation of Autonomous Navigation and Mapping using a Laser Line Scanner on a Tactical Unmanned Aerial Vehicle”. Master of Science in Computer Science. Naval Postgraduate School, Dec. 2011. URL: <https://calhoun.nps.edu/handle/10945/10728>.
- [8] Christian Klaus. “Probabilistic search on optimized graph topologies”. Master of Science in Operations Research. Naval Postgraduate School, Sept. 2011. URL: <https://calhoun.nps.edu/handle/10945/5569>.
- [7] Mauricio F. Muñoz. “Agent-Based Simulation and Analysis of a Defensive UAV Swarm Against an Enemy UAV Swarm”. Master of Science in Operations Research. Naval Postgraduate School, June 2011. URL: <https://calhoun.nps.edu/handle/10945/5700>.
- [6] Jason Hickle and Steven Halle. “The design and implementation of a semi-autonomous surf-zone robot using advanced sensors and a common robot operating system”. Master of Science in Applied Physics. Naval Postgraduate School, June 2011. URL: <https://calhoun.nps.edu/handle/10945/5690>.
- [5] Edward O. Williams. “Surveillance and Interdiction Models: A Game-Theoretic Approach to Defend Against VBIEDs”. Master of Science in Defense Analysis. Naval Postgraduate School, June 2010. URL: <https://calhoun.nps.edu/handle/10945/5329>.
- [4] Mark J. Muratore. “Effective Teaming of Airborne and Ground Assets for Surveillance and Interdiction”. Master of Science in Operations Research. Naval Postgraduate School, June 2010. URL: <https://calhoun.nps.edu/handle/10945/5267>.
- [3] Kenneth Byers. “Situational Awareness for Surveillance and Interdiction Operations (SASIO): Tactical Installation Protection”. Master of Science in Operations Research. Naval Postgraduate School, Mar. 2010. URL: <https://calhoun.nps.edu/handle/10945/5383>.
- [2] Richard B. Morrison. “Fiducial marker detection and pose estimation from LIDAR range data”. Master of Science in Modeling, Virtual Environments, and Simulation. Naval Postgraduate School, Mar. 2010. URL: <https://calhoun.nps.edu/handle/10945/5411>.
- [1] Matthew D. Hasting. “Combat Simulation of Individual Soldier Search in Urban Terrain”. Master of Science in Operations Research. Naval Postgraduate School, June 2009. URL: <https://calhoun.nps.edu/handle/10945/4770>.

Honors and Awards

2013 Richard W. Hamming Award for Interdisciplinary Achievement

Editorial Activities and Scientific Events Organization

Program Committees and Associate Editorships

- Robotics: Science and Systems: Program Committee member
- Distributed Autonomous Robotic Systems: Program Co-Chair
- ACM Symposium on Applied Computing: Program Committee member
- IEEE International Conference on Robotics and Automation: Associate Editor
- IEEE International Conference on Intelligent Robots and Systems: Associate Editor
- IEEE International Conference on Unmanned Aerial Systems: Associate Editor
- IEEE Conference on Decision and Control: Associate Editor
- American Control Conference: Associate Editor
- IEEE Conference on Automation Science and Engineering: Associate Editor

Reviews for International Journals

IEEE Transactions on Robotics; Autonomous Robots; IEEE Transactions on Automatic Control; IEEE Transactions on Mechatronics; International Journal on Robotics Research; IEEE Systems Journal; Systems and Control Letters; IEEE Transactions on Signal Processing; Journal of Applied Mathematics and Decision Sciences; Neural Computing and Applications; Naval Research Logistics; IEEE Transactions on Cybernetics; European Journal of Operations Research; Journal on Intelligent Service Robots; Naval War College Review; Journal of Behavioral Robotics; ASME Journal of Dynamic Systems, Measurement and Control; SIAM Journal on Control and Optimization;

Reviews for International Conferences

IEEE International Conference on Robotics and Automation; IEEE/RSJ International Conference on Intelligent Robots and Systems; Robotics: Science and Systems; Distributed Autonomous Robotic Systems; IEEE Conference on Decision and Control; IEEE American Control Conference; IEEE Conference on Automation Science and Engineering; IEEE Conference on Unmanned Aerial Systems; ACM Symposium on Applied Computing; IFAC World Congress on Control; Mediterranean Conference on Control and Automation; Latin-American Congress on Automatic Control;

References

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Short Biography

Dr. Timothy H. Chung is an Assistant Professor of Systems Engineering at the Naval Postgraduate School in Monterey, California. Dr. Chung also serves as the Deputy Director of the Secretary of the Navy initiative, the Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). His research interests include modeling and analysis of operational settings involving unmanned systems, notably information gathering and sensor fusion for search and detection missions using probabilistic and optimization models. Combining algorithm development with field experimentation, active research pursuits include systems design of large teams of cooperating and adversarial robots. Such efforts involve integration of modeling, algorithms, hardware, simulation, communications, human factors, and control, leveraging extensive research collaborations. He received his doctorate (2007) and M.S. (2002) at the California Institute of Technology in mechanical engineering and his B.S. (2001) in mechanical and aerospace engineering at Cornell University. He joined NPS in 2008.