Stefanos Nikolaidis

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Education

Ph.D., Robotics, Carnegie Mellon University. **2017**
Advisor: Siddhartha Srinivasa. GPA: 4.0/4.0. Thesis defended in October 2017.

M.Sc., Aeronautics and Astronautics, Massachusetts Institute of Technology. **2014**
Advisor: Julie Shah. GPA: 5.0/5.0.

M.Eng., Precision Engineering, The University of Tokyo. **2009**
Advisor: Tamio ARAI. (Grade: "Excellent").

B.Sc., Electrical and Computer Engineering, National Technical University of Athens. **2006**
Advisor: Spyros Tzafestas. GPA: 9.18/10.

Work Experience

Research Associate, University of Washington, Department of Computer Science and Engineering, PI: Siddhartha Srinivasa. **2018**

Visiting Researcher, National University of Singapore, Department of Computer Science, PI: David Hsu. **2016**

Research Specialist, Massachusetts Institute of Technology, Computer Science and Artificial Intelligence Laboratory, PI: Julie Shah. **2014**

Researcher, Square Enix Research and Development, Japan, worked on example-based generation of character motion for video game applications. **2009-2011**

Visiting Researcher, Takanishi Laboratory, Waseda University. **2008**

Software Engineer, Institute of Language and Speech Processing, Greece. **2006-2007**

Awards

Best Enabling Technologies Paper Award, HRI 2015. **2015**

CMU Gordon Bell Fellowship. **2015**

Best Paper Award Nomination, 44th International Symposium of Robotics (ISR 2013). **2013**

Invited Talk at HRI Pioneers. **2013**
(2 out of 57 applicants were selected)

MIT Dupont Fellowship. **2012**

MIT George and Marie Vergottis Fellowship. **2012**

Onassis Foundation Scholarship. **2011**

Propondis Foundation Honorary Scholarship. **2011**

Third place in Japan-Open RoboCup, Four-legged league, Osaka. **2007**

Japanese Government Scholarship, Scholarship for graduate studies in Japan. **2007**

Teaching

Courses

Manipulation Algorithms, Carnegie Mellon University. 2017
Instructor (co-taught with Dr. Katharina Muelling).

Dynamic Optimization, Carnegie Mellon University. 2017
TA for Prof. Chris Atkeson.

Principles of Autonomy and Decision Making, Massachusetts Institute of Technology. 2013
TA for Prof. Julie Shah

Training

Future Faculty Program, Eberly Center for Teaching Excellence and Educational Innovation, Carnegie Mellon University. 2016-2017
Completed program, which included seminars, teaching feedback consultations and a course design project.

Mentoring

Xuning Wang, Rosario Scalise, Shen Li, Shiyuan Chen, Reuben Aronson, Richard Goldstein, Shushman Choudhury, Research Qualifier Committee, Carnegie Mellon University.

Minae Kwon, Robotics Institute Summer Scholarship, Carnegie Mellon University.

Yu Xiang Zhu, Anton Kuznetsov, Undergraduate Research Opportunities, Carnegie Mellon University.

Premyszlaw Lasota, Ramya Ramakrishnan, M.Sc. Thesis, Massachusetts Institute of Technology. (Now PhD Candidates at MIT)

Keren Gu, Julia Guo, Hrishikesh Joshi, Undergraduate Research Opportunities Program, Massachusetts Institute of Technology.

Service

Workshop Organizer: *Mathematical Models, Algorithms, and Human-Robot Interaction*, RSS 2017.

Workshop Organizer: *Planning for Human-Robot Interaction: Shared Autonomy and Collaborative Robotics*, RSS 2016.

Reviewer: IJRR, IEEE-TRO, AURO, IEEE RA-L, IEEE-RAM, RSS, HRI, ICRA, IROS, RO-MAN

Program Committee Member: AAAI, HRI Pioneers, MIPC

National Olympic Committee Volunteer: Olympic Games, Athens 2004

Media Coverage

Human-Robot Cross-Training: MIT News, Discovery News, New York Times, ACM Tech News, New Scientist, Inc.

Learning Human Types from Demonstrations: Harvard Business Review, KurzweilAI

Automated Dining: IEEE Spectrum, IEEE The Institute

Demos

Automated Dining: I led the development of a robot enabled dining scenario in the Personal Robotics Lab. In April 2016, I presented the demo to Secretary Clinton.

HERB Sorts Colored Blocks: I contributed to the development of a demo, where HERB, our home exploring robotic butler, completes a YCB task of sorting colored blocks. We presented the demo at the Carnegie Science Center.

Shared Autonomy Control with VR Interface: I contributed to the development of a demo, where a remote operator performs manipulation tasks through a Virtual Reality interface. In July 2017, I presented the demo to the Chief of Naval Research Rear Adm. David Hahn.

Languages

Greek (native), English (full professional), Japanese (professional working), French (limited working), German (elementary)

Invited Talks

Game-Theoretic Modeling of Human Adaptation in Human-Robot Collaboration, RSS 2017 Workshop on Mathematical Models, Algorithms, and Human-Robot Interaction . **2017**

Mutual Adaptation in Human-Robot Collaboration, Harvard University, Massachusetts Institute of Technology, Stanford University, University of Southern California, Georgia Institute of Technology, Princeton University, University of Texas at Austin, Cornell University, Brown University. **2017**

Human-Robot Mutual Adaptation, RSS 2016 Workshop on Planning for Human-Robot Interaction. **2016**

Human-Robot Cross-Training, Northeastern University. **2013**

Human-Robot Cross-Training, HRI Pioneers. **2013**

Publications

Journals

[J1] Stefanos Nikolaidis, Minae Kwon, Jodi Forlizzi, and Siddhartha Srinivasa. Planning with verbal communication for human-robot collaboration. *ACM Transactions on Human-Robot Interaction*, 2018 (under review).

[J2] Stefanos Nikolaidis, David Hsu, and Siddhartha Srinivasa. Human-robot mutual adaptation in collaborative tasks: Models and experiments. *The International Journal of Robotics Research (IJRR)*, 2017.

[J3] Stefanos Nikolaidis, Przemyslaw Lasota, Ramya Ramakrishnan, and Julie Shah. Improved human–robot team performance through cross-training, an approach inspired by human team training practices. *The International Journal of Robotics Research (IJRR)*, 2015.

Conferences

[C1] Min Chen*, Stefanos Nikolaidis*, Harold Soh, David Hsu, and Siddhartha Srinivasa. Planning with trust for human-robot collaboration. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2018 (* equal contribution, forthcoming).

[C2] Stefanos Nikolaidis, Swaprava Nath, Ariel D Procaccia, and Siddhartha Srinivasa. Game-theoretic modeling of human adaptation in human-robot collaboration. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2017.

[C3] Stefanos Nikolaidis, Yu Xiang Zhu, David Hsu, and Siddhartha Srinivasa. Human-robot mutual adaptation in shared autonomy. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2017.

[C4] Stefanos Nikolaidis, Anton Kuznetsov, David Hsu, and Siddhartha Srinivasa. Formalizing human-robot mutual adaptation: A bounded memory model. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2016.

[C5] Stefanos Nikolaidis, Anca Dragan, and Siddhartha Srinivasa. Viewpoint-based legibility optimization. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2016.

[C6] Stefanos Nikolaidis, Ramya Ramakrishnan, Keren Gu, and Julie Shah. Efficient model learning from joint-action demonstrations for human-robot collaborative tasks. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2015. **(best enabling technology award)**.

[C7] Stefanos Nikolaidis and Julie Shah. Human-robot cross-training: computational formulation, modeling and evaluation of a human team training strategy. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2013.

[C8] Ronald Wilcox, Stefanos Nikolaidis, and Julie Shah. Optimization of temporal dynamics for adaptive human-robot interaction in assembly manufacturing. *Robotics Science and Systems (RSS)*, 2012.

[C9] Stefanos Nikolaidis and Tamio Arai. Optimal arrangement of ceiling cameras for home service robots using genetic algorithms. In *The IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, 2009.

[C10] Stefanos Nikolaidis, Ryuichi Ueda, Akinobu Hayashi, and Tamio Arai. Optimal camera placement considering mobile robot trajectory. In *IEEE International Conference on Robotics and Biomimetics (ROBIO)*, 2009.

[C11] Ryuichi Ueda, Stefanos Nikolaidis, Akinobu Hayashi, and Tamio Arai. Global pose estimation of multiple cameras with particle filters. In *Distributed Autonomous Robotic Systems (DARS)*. 2009.

[C12] Aggelos Gkiokas, Kostas Perifanos, and Stefanos Nikolaidis. Real-time detection and visualization of clarinet bad sounds. In *Proceedings of the International Conference on Digital Audio Effects (DAFx)*, 2008.

[C13] Prachya Kamol, Stefanos Nikolaidis, Ryuichi Ueda, and Tamio Arai. RFID based object localization system using ceiling cameras with particle filter. In *Future generation communication and networking (FGCN)*, 2007.

Workshops

[W1] Stefanos Nikolaidis, Enkelejda Kasneci, and Siddhartha Srinivasa. Leveraging eye tracking and physiological signals for fluent human robot collaboration. In *IROS Workshop on Human-Robot Interaction in Collaborative Manufacturing Environments*, 2017.

[W2] Min Chen, Stefanos Nikolaidis, Harold Soh, David Hsu, and Siddhartha Srinivasa. The role of trust in decision-making for human robot collaboration. In *Robotics Science and Systems (RSS), Workshop on Human-Centered Robotics*, 2017.

[W3] Stefanos Nikolaidis, Keren Gu, Ramya Ramakrishnan, and Julie Shah. Learning human types from demonstration. In *2014 AAAI Fall Symposium Series*, 2014.

[W4] Stefanos Nikolaidis, Przemyslaw Lasota, Gregory Rossano, Carlos Martinez, Thomas Fuhlbrigge, and Julie Shah. Human-robot collaboration in manufacturing: Quantitative evaluation of predictable, convergent joint action. In *International Symposium on Robotics (ISR)*, 2013. **(best paper award finalist)**.

[W5] Przemyslaw Lasota, Stefanos Nikolaidis, and Julie Shah. Developing an adaptive robotic assistant for close proximity human-robot collaboration in space. In *AIAA Infotech Aerospace Conference*, 2013.

[W6] Stefanos Nikolaidis and Julie Shah. Human-robot cross-training: computational formulation, modeling and evaluation of a human team training strategy. In *HRI Pioneers (International Conference on Human-Robot Interaction)*, 2011.

[W7] Stefanos Nikolaidis and Julie Shah. Human-robot interactive planning using cross-training: A human team training approach. In *AIAA Infotech Aerospace Conference*. 2012.

[W8] Stefanos Nikolaidis and Julie Shah. Human-robot teaming using shared mental models. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI), Workshop on Human-Agent-Robot Teamwork*, 2012.

[W9] Ryuichi Ueda, Stefanos Nikolaidis, Akinobu Hayashi, and Tamio Arai. Pose estimation of multiple cameras with particle filters - evaluation on experimental data. In *Proceedings of the Annual Conference of the Robotics Society of Japan (RSJ)*, 2008. (in Japanese).

[W10] Feng Duan, Stefanos Nikolaidis, Akinobu Hayashi, Jeffrey Tan, Ye Zhang, and Tamio Arai. Image-based operator monitoring system. In *Proceedings of the Annual Conference of the Robotics Society of Japan (RSJ)*, 2008. (in Japanese).

[W11] Akinobu Hayashi, Stefanos Nikolaidis, Ryuichi Ueda, and Tamio Arai. Optimal pose planning for door opening task by mobile 7 dof manipulator. In *Proceedings of the Annual Conference of the Robotics Society of Japan (RSJ)*, 2008. (in Japanese).

[W12] Feng Duan, Jeffrey Tan, Stefanos Nikolaidis, Ryu Kato, and Tamio Arai. Predict worker's intention through template-based gesture recognition method. In *The Japan Society for Precision Engineering Autumn Meeting (JSPE)*, 2008.

[W13] Ryuichi Ueda, Stefanos Nikolaidis, Prachya Kamol, Akinobu Hayashi, and Tamio Arai. Pose estimation of multiple cameras with particle filters - evaluation on simulation. In *The Society of Instrument and Control Engineers (SICE)*, 2007. (in Japanese).

[W14] Prachya Kamol, Stefanos Nikolaidis, Akinobu Hayashi, Tamio Arai, and Ryuichi Ueda. RFID – based object localization system using particle filter with ceiling cameras. In *Proceedings of the Annual Conference of the Robotics Society of Japan (RSJ)*, 2007.

Patents

[P1] Seth Cooper, Stefanos Nikolaidis, and Arun Mehta. Efficient example-based styling of motion databases. 2011.

[P2] Joel Horne, Stefanos Nikolaidis, and Junko Asakura. Robust motion selection for physical biped character control. 2010.