

# STEFANOS NIKOLAIDIS

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## Education

- Ph.D., Robotics**, Carnegie Mellon University. **2018 (ABD)**  
Advisor: Siddhartha Srinivasa. GPA: 4.0/4.0.
- 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

- 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. **2009-2011**
- Visiting Researcher**, Takamishi Laboratory, Waseda University. **2008**
- Software Engineer**, Institute of Language and Speech Processing, Greece. **2006-2007**

## Awards

- Enabling Technologies Best 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 Marie-Vergotties 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

- Manipulation Algorithms**, Carnegie Mellon University. **2017**

Co-instructor.

**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

## Mentoring

**Xuning Wang, Rosario Scalise, Shen Li, Shiyuan Chen**, Research Qualifier Committee, Carnegie Mellon University.

**Minae Kwon**, Robotics Institute Summer Scholaship, Carnegie Mellon University.

**Premyszlav Lasota, Ramya Ramaksishnan**, M.Sc. Thesis, Massachusetts Institute of Technology.  
(Now PhD Candidates at MIT)

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

**Pearle Lipinski, Michael Benitez**, 16.622 Experimental Projects II class project, Massachusetts Institute of Technology.

## Service

**Workshop Organizer:** *Planning for Human-Robot Interaction*, RSS 2017.

**Workshop Organizer:** *Mathematical Models, Algorithms, and Human-Robot Interaction*, RSS 2016.

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

**Program Committee Member:** 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

## Demos

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

## Languages

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

## Invited Talks

**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, David Hsu, and Siddhartha Srinivasa. Human-robot mutual adaptation in collaborative tasks: Models and experiments. *The International Journal of Robotics Research (IJRR)*, 2017.
- [J2] 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] 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.
- [C2] 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.
- [C3] 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.
- [C4] 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.
- [C5] 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 paper award)**.
- [C6] 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.
- [C7] 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.
- [C8] 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.
- [C9] 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.

- [C10] 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.
- [C11] 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.
- [C12] 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, 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)**.
- [W2] 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.
- [W3] 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.
- [W4] Stefanos Nikolaidis and Julie Shah. Human-robot interactive planning using cross-training: A human team training approach. In *AIAA Infotech Aerospace Conference*. 2012.
- [W5] 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.
- [W6] 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).
- [W7] 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).
- [W8] 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).
- [W9] 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.
- [W10] 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).

[W11] 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.