

George P. Kontoudis

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RESEARCH INTERESTS

My research interests lie in improving the dexterity of robotic devices that operate in unstructured environments, focusing on online motion planning, exo-arm/hand assistive devices, bio-inspired compliant mechanisms, and optimal control.

EDUCATION

PhD, Virginia Tech, USA 2016-Present
Department of Mechanical Engineering
Advisor: Prof. Tomonari Furukawa
Co-advisor: Prof. Kyriakos G. Vamvoudakis
Current GPA: 4.0/4.0
Coursework: Advanced Experimental Robotics, Optimization Techniques, Bayesian Robotics, Cyber-Physical Systems & Distributed Control, Motion Planning Analysis, Nonlinear Systems Theory

Diploma (MSc), National Technical University of Athens, Greece 2012-2016
School of Mechanical Engineering
Advisor: Prof. Kostas J. Kyriakopoulos
Co-advisor: Prof. Minas Liarokapis
Grade: 7.76/10 (*top 20%*)

BSc, Piraeus University of Applied Sciences, Greece 2005-2010
Department of Mechanical Engineering

RESEARCH EXPERIENCE

Graduate Research Assistant May 2017 - Present
Computational Multiphysics Systems Laboratory
School of Mechanical Engineering, Virginia Tech, USA

Member & Research Associate September 2014 - Present
The OpenBionics Initiative

Research Assistant April 2014 - March 2016
Control Systems Laboratory
School of Mechanical Engineering, National Technical University of Athens, Greece

TEACHING EXPERIENCE

Graduate Teaching Assistant August 2016 - May 2017
School of Mechanical Engineering, Virginia Tech, USA

- Lectured 80 students in a senior level, control systems lab. Fall 2016
- Guided 20 students in a series of 8 junior level, mechanical engineering labs. Spring 2017

AWARDS & HONORS

NTUA Thomaideion Award Greece 2016
Hackaday Prize, 2nd place (among 900 projects) USA 2015
Robotdalen Innovation Award, 1st place Sweden 2015
IEEE/RAS Student Travel Award (IROS) Germany 2015

PROFESSIONAL EXPERIENCE

Senior Mechanical Engineer

Heliix Inc., Athens, Greece

March 2016 - June 2016

- Worked on the product design & development of a waste heat recovery device

Site Supervisor

Sychem S.A., Athens, Greece

September 2013 - August 2015

- Provided guidance to industrial maintenance crew of 6 people for a desalination plant

Mechanical Engineer

Sychem S.A., Athens, Greece

October 2010 - September 2013

- Monitored and commissioned desalination plants

Aircraft Maintenance Engineer Trainee

Olympic Aviation, Athens, Greece

May 2008 - January 2010

- Performed engineering work of maintenance and modifications on aircrafts

PUBLICATIONS

Referred Journal Publications

- [J1] **George P. Kontoudis**, Minas Liarokapis, Kyriakos G. Vamvoudakis, and Tomonari Furukawa “A Modular Actuation Mechanism for Adaptive Robotic Fingers,” *IEEE Robotics and Automation Letters (RA-L)*, 2018. (in review)

Referred Conference Publications

- [C1] **George P. Kontoudis** and Kyriakos G. Vamvoudakis, “RRT-Q: An Online Motion Planning Framework with Q-Learning,” *IEEE Conference on Decision and Control (CDC)*, 2018. (in review)
- [C2] Kyriakos D. Tsoukalas, **George P. Kontoudis**, and Kyriakos G. Vamvoudakis, “Active-Bayesian Learning for Cooperation Connectivity in Dynamic Cyber-Physical-Human Systems,” *IEEE Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL)*, Honolulu, USA, 2017. (invited paper)
- [C3] **George P. Kontoudis**, Minas Liarokapis, Agisilaos G. Zisimatos, Christoforos I. Mavrogiannis, and Kostas J. Kyriakopoulos, “Open-Source, Anthropomorphic, Underactuated Robot Hands with a Selectively Lockable Differential Mechanism: Towards Affordable Prostheses,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, 2015.

Other Publications

- [O1] **George P. Kontoudis**, Minas Liarokapis, Agisilaos G. Zisimatos, Christoforos I. Mavrogiannis, and Kostas J. Kyriakopoulos, “How to Create Affordable, Anthropomorphic, Light-Weight Prosthetic Hands,” *Control Systems Lab, National Technical University of Athens*, Athens, Greece, October 2015.
- [O2] Agisilaos G. Zisimatos, Minas Liarokapis, Christoforos I. Mavrogiannis, **George P. Kontoudis**, and Kostas J. Kyriakopoulos, “How to Create Affordable, Modular, Light-Weight, Underactuated, Compliant Robot Hand,” *Control Systems Lab, National Technical University of Athens*, Athens, Greece, January 2015.

Theses

- [T1] **George P. Kontoudis** “Design and Development of an Underactuated, Anthropomorphic Robot Hand,” *Diploma Thesis, National Technical University of Athens (NTUA)*, Athens, Greece, March 2016. (In Greek)

TALKS & PRESENTATIONS

- “Open-Source, Anthropomorphic, Underactuated Robot Hands with a Selectively Lockable Differential Mechanism: Towards Affordable Prostheses,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Hamburg (Germany), 2015.

SERVICE ACTIVITIES

Reviewer

- International Conference on Biomedical Robotics and Biomechatronics (BioRob) 2018
- International Conference on Intelligent Robots and Systems (IROS) 2018
- International Conference on Robotics and Automation (ICRA) 2018
- American Control Conference (ACC) 2018
- International Journal of Advanced Robotic Systems (IJARS) 2015 - 2016

SKILLS

Languages

English, Greek(native)

Operating Systems

Linux, ROS, Windows

Design and Simulation Software

Solidworks, AutoCAD, ANSYS, Slic3r, ProCAST, PSpice, Cura

Programming

Python, C/C++, MATLAB, HTML/CSS, \LaTeX

Other Skills

Laser cutting, 3D printing

MEMBERSHIPS & SOCIETIES

Memberships

- IEEE - Student Member 2015 - Present
- ASME - Student Member 2016 - Present

Societies

- IEEE - Robotics and Automation Society (RAS) 2015 - Present
- IEEE - Control Systems Society (CSS) 2017 - Present