Konstantinos Chatzilygeroudis

Curriculum Vitae

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In a glance

Current Position	**Doctoral Researcher** at **Inria Nancy - Grand Est**, France
Education	**PhD Candidate in Robotics/Machine Learning**
Honors	Ranked in **top 5%** at **Computer Science and Engineering 2014 Graduation**
Experience	**Google Summer of Code Intern for Open Source Robotics Foundation**
Research Keywords	Robot Learning, Evolutionary Robotics, Machine Learning, Evolutionary Computation

Education

October 2015–present — **PhD in Robotics and Machine Learning**, *University of Lorraine - Inria Nancy (LARSEN Team)*, France.

2009–2014 — **Diploma of Computer Science and Engineering**, *University of Patras*, Greece, *GPA – 8.25/10*.
Specialized in Artificial Intelligence, Robotics, Software Engineering and Computer Graphics - Top 5%

2010–Today — **Online Courses**, *Coursera, edX, Udacity*.
I have attended and completed over 15 online courses covering a very broad range of topics, including Software Engineering, Artificial Intelligence, Robotics, Control Theory, Machine Learning, Game Theory, Digital Signal Processing, e.t.c.

2006–2009 — **High School**, *G.E.L. Kato Kastritsiou*, Patras, Greece, *GPA – 19.3/20*.
Specialized in Mathematics/Physics

Experience

Vocational

October 2015–present — **Doctoral Researcher**, *Inria (LARSEN Team)*, Nancy, France.
Research Topic: Diagnosis-free Damage Recovery in Robotics with Machine Learning and Evolutionary Computation
Funding: ERC "ResiBots" Project
Supervisor: Jean-Baptiste Mouret

January–September 2015 — **Computer/Software Engineer**, *Institute of Language and Speech Processing*, Athens, Greece, Scholarship.
Computer/Software Engineer at Institute for Language and Speech Processing, Athens. I was market researching and setting up a laboratory for multi-modal human-computer interaction based on expressive speech synthesis (robots, avatars, motion capture systems, microphone arrays, e.t.c.). My main duties involved searching for available hardware and selecting the most appropriate given specific user/scientific cases. I was, also, involved in integrating *Innoetics'* software into modules of the humanoid robot NAO and creating the infrastructure for easy code re-use.

May–August 2015 **Google Summer of Code 2015**, *Open Source Robotics Foundation*.
As a GSoC 2015 intern, I focused on adding more features to the core library of the *Ignition Robotics Transport Library*. The main tasks involved code restructuring using C++11 features and enabling easy code re-use and enhancing modularity. I was also involved in creating some command line tools for the library.

March–June 2015 **Intern**, *Bit My Job*, Patras, Greece.
During my internship at Bit My Job I developed a framework for Tablet (Android) to Server (Java) communication for live-scoring purposes in shooter tournaments. Also, I created several websites using PHP, Joomla or Wordpress. My internship had a duration of 3 months.

Miscellaneous

Nov–Dec 2013 **Programmer**, *Laboratory for Manufacturing Systems & Automation*, University of Patras, Greece.
Worked on CAPP 4 SMEs European Project. I was developing 3D/2D simulation (using Java and OpenGL) and a Web Application (using Ruby on Rails).

July 2010–June 2015 **Coach**, *Table Tennis Academy "Anagennisi Patron"*, Rion, Greece.
I was the head coach of the Table Tennis Academy "Anagennisi Patron".

Publications

Conferences

May 2015 **Human robot collaboration for folding fabrics based on force/RGB-D feedback**, *Panagiotis Koustoumpardis, Konstantinos Chatzilygeroudis, Aris Synodinos, Nikos Aspragathos*, Proceedings of the 24th International Conference on Robotics in Alpe-Adria-Danube Region, Bucharest, Romania, Pages: 235-243.
In this paper, the human-robot collaboration for executing complicated handling tasks for folding non-rigid objects is investigated. A hierarchical control system is developed for the co-manipulation task of folding sheets like fabrics/cloths. The system is based on force and RGB-D feedback in both higher and lower control levels of the process. In the higher level, the perception of the human's intention is used for deciding the robot's action; in the lower level the robot reacts to the force/RGB-D feedback to follow human guidance. The proposed approach is tested in folding a rectangular piece of fabric. Experiments showed that the developed robotic system is able to track the human's movement in order to help her/him to accomplish the folding co-manipulation task.

Workshops

May 2016 **Towards semi-episodic learning for robot damage recovery**, *Konstantinos Chatzilygeroudis, Antoine Cully, Jean-Baptiste Mouret*, AILTA '16: Proceedings of the International Workshop "AI for Long-term Autonomy" at ICRA 2016, *Supplementary Video*.
The recently introduced Intelligent Trial and Error algorithm (IT&E) enables robots to creatively adapt to damage in a matter of minutes by combining an off-line evolutionary algorithm and an on-line learning algorithm based on Bayesian Optimization. We extend the IT&E algorithm to allow for robots to learn to compensate for damages while executing their task(s). This leads to a semi-episodic learning scheme that increases the robot's life-time autonomy and adaptivity. Preliminary experiments on a toy simulation and a 6-legged robot locomotion task show promising results.

Reviewer

ReMAR 2015 I was reviewer in the 3rd IEEE/IFToMM International Conference on *Reconfigurable Mechanisms and Robots*.

Diploma Thesis

Title	*Navigation of Humanoid Robot Nao In Unknown Space With Dynamic Obstacles*
Supervisors	Professor Nikos Aspragathos & Professor Emmanouil Psarakis & PhDc Aris Synodinos
Description	This thesis dealt with all the fields that give the ability to humanoid robots to move autonomously in a previously unknown space. It was, mainly, a software development project with a brief bibliographic overview of the major algorithms and techniques in each individual field. The "small" humanoid NAO (from Aldebaran Robotics) was used for the experiments and ROS (Robot Operating System) as the programming framework.
Grade	10/10
Videos	*NAO Walking in Gazebo*
Code	*nao_dcm, nao_gazebo*

Honors & Awards

December 2014	**Computer Engineering and Informatics Department Graduation**. Ranked **9th with GPA 8.25/10** amongst 250 students that graduated from the Computer Engineering and Informatics Department of University of Patras in 2014.
August 2009	**Greek National Exams - Admission Exams**. Ranked **1st in admission exams** for the Computer Engineering and Informatics Department of University of Patras among 250 students who succeeded.
May 2010	**Microsoft Imagine Cup Competition**. Ranked among the **150 best teams** with team TTD (as a game designer/developer) at the Game Development part of the International "Imagine Cup 2010" competition (organized by Microsoft) with the project/game *Spring*.

Skills

Intermediate	Ruby, Screw Theory, XNA, DirectX10, OpenGL, MATLAB/Octave, MVC Web Development with Ruby on Rails or PHP, LaTeX, Javascript/jQuery, Android, HTML5/CSS
Advanced	C/C++, Robotics Operating System (ROS), Java, C#, Python, Object Oriented Design & Programming, Game-Graphics Programming, Math for 2D/3D Graphics

Personal Data

Place/Date of Birth	Nottingham, UK | 5 February 1991
Citizenship	Greek
Marital Status	Married
Address	Nancy, France
Phone	+33 610466287
Website	http://costashatz.github.io/
E-mail	costashatz@gmail.com
GitHub	costashatz
Bitbucket	costashatz
Linked-In	konstantinoschatzilygeroudis

Languages

Greek	**Native**	
English	**Full professional proficiency**	*Fluent both in oral and written (C2)*
French	**Elementary proficiency**	*Basic words and phrases only*

Interests

- Artificial Intelligence
- Machine Learning
- Table Tennis
- Robotics
- Programming
- Drawing