
Jakub Tomášek

Robotics engineer

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Work experience

- 2016 July-now **Robotics engineer**, GMV Aerospace and Defence, Spain
– LUCID: LUNar scenario Concept validation and Demonstration. It is an ESA activity to address the operation of rovers in permanently shadowed areas such as the Moon south pole. We are building the software based on ROS from scratch and integrating different experiments.
- 2016 Jan-April **Trainee**, GMV Aerospace and Defence, Spain
– development of computer vision and control algorithms for robotic inspection on an oil&gas platform for **ARGOS robotic challenge** by Total.
– skills: *computer vision, ROS, C++*.
- 2015 June-Nov **Trainee**, Automation and Robotics Section (TEC-MMA)
ESTEC, European Space Agency, Netherlands
– developed a novel robotic testbed for verification of robotic concepts in microgravity environment.
– skills: *mobile robots, ROS, sensors, feedback control system design, rapid prototyping*.
– support of activities of Planetary Robotics Laboratory (rover field testing) and Orbital Robotics Laboratory (ESTEC open day, involved in studies for Cleanspace).
- 2015 Jan-June **Research Assistant**, Department of Control Engineering
2013 May-Aug Faculty of Electrical Engineering, Czech Technical University in Prague
– lens-free microscopy as a feedback for micromanipulation using dielectrophoresis.
– skills: *control system design, computer vision, optimization, literature research, rapid prototyping*.
– We participated in **Microrobotic challenge at IEEE ICRA 2013**.
- 2013 Sept-Dec **Research Assistant**, Intelligent Systems Research Center
Sungkyunkwan University, South Korea
– I built a prototype of a 3D scanner for plastic surgery. Concept of a 3D endoscope using structured light
- 2010–2013 **Freelance Web Developer**
– I worked for a number of companies as a programmer and web developer. I was involved in projects ranging from intranet for logging data in a warehouse, through user interface for data management from PLCs at a factory, to standard company presentation website. I learned independence.
– Skills: *PHP, MySQL, HTML*.

Education

- 2013–2016 **MSc in Cybernetics and Robotics, Czech Technical University in Prague**
Faculty of Electrical Engineering, Department of Control Engineering
– Core courses: Optimal and robust control, Nonlinear systems, Estimation theory, Robotics
– Project: In *Honeywell Prague Laboratory* I joined a student team to develop control-oriented model of SCR Catalyst for state estimation and MPC.
– GPA: 1.00¹ (Awarded a scholarship for excellent students)
- 2014 Jan-May **Nanyang Technological University, Singapore**
Exchange postgraduate student, School of Electrical and Electronic Engineering
- 2010–2013 **BSc in Cybernetics and Robotics, Czech Technical University in Prague**
Faculty of Electrical Engineering, Department of Control Engineering
– *Graduated with first class honors* (GPA: 1.06¹)
– Overall, I ranked 2nd among 426 graduates at faculty level.
– Thesis: *Optically controlled and sensed micromanipulation*
– International Student Club

¹Czech GPA: best 1, worst 4 (failed)

Extracurricular short courses

- Introduction to Spacecraft Systems Engineering (2015, **University of Southampton**)
- Finite Element Method (2013, **Delft University of Technology**)
- Summer school in international relations (2012; **University of Seoul**, South Korea)
- Distributed Systems (2012, **KTH Stockholm**)

Online course certificates

- Underactuated robotics (MIT, edX)
- Game theory (Stanford University, Coursera)
- Algorithms: Design and Analysis (Stanford University, Coursera)

Publications

J. Tomasek, H. Kolvenbach, M. Pagnamenta, and K. Wormnes, "A robotic testbed for low-gravity simulation," in *13th International Symposium on Artificial Intelligence, Robotics and Automation in Space (iSAIRAS)*, Beijing, China, 2016.

Computer skills

Languages	C, C++, Python, Java
General	Mathworks MATLAB and Simulink, Comsol Multiphysic, Solidworks, Linux and ROS, \LaTeX

Language skills

Czech	<i>mother tongue</i>
English	<i>fluent</i> (C1 level - IELTS certificate, University of Cambridge ESOL Examinations)
French	<i>elementary</i> (3 years at school)

Extracurricular activities

IEEE member.

I was part of **USE-IT Prague** – a group of young volunteers who have explored Prague to create a beautiful map of hidden places for other young travelers.

2015 Nov	TEDxESA – volunteer
2010 August	International Volunteer Camp in Scotland <i>Dean Castle Country Park in Kilmarnock, Scotland, United Kingdom</i>
2010 April	With three volunteers we organized a beneficial ball for Josef Ressel High School in Chomutov.

Personal Interests

I am passionate about space exploration. I spend most of my free time out in the nature – I enjoy hiking, trail running, and cycling. Thanks to my year experience in different Asian countries I became fascinated by Asian history and culture.