

# CHRISTOS BERGELES

## COMMUNICATION ADDRESS

Tannenstrasse 3, CLA H11.1  
8092 Zurich, Switzerland

## ELECTRONIC ADDRESS

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## PERSONAL DATA

Greek, single, born in 1984.

## JOB DESCRIPTION

Conducting research in the field of microrobots for ophthalmic surgeries as part of my Ph. D. studies at the ETH Zurich in Switzerland.

## EDUCATION

2006–now, Ph.D Studies on intraocular microrobotics  
Federal Institute of Technology (ETH), Zurich, Switzerland

2001–2006, Diploma of Electrical and Computer Engineering, 5-year studies  
National Technical University of Athens (NTUA), Athens, Greece  
G.P.A. 9.52/10.0

## EXPERIENCE

**Research Assistant** ETH Zurich, Switzerland Fall 2006–Present  
Conducted research in the field of computer vision and microrobotics, in projects involving microrobots for ophthalmic surgery, and microrobots for micromanipulation.

**Student Advisor** ETH Zurich, Switzerland 2007–2010  
Advised 10 students during their Bachelor Theses, Semester Projects, or Master Theses, which led to 5 paper publications, and 1 patent.

**Teaching Assistant** ETH Zurich, Switzerland 2007–2010  
Prepared and conducted tutorial sessions and lectures for more than 80 students, for the course “Theory of Robotics and Mechatronics”. Assisted in the laboratory exercises for the “Introduction to Robotics and Mechatronics”. Co-advised and guided students for the participation in Robocup (micro-scale) 2009 (course of “Advanced Robotics and Mechatronics”).

**IT Responsible** ETH Zurich, Switzerland 2008–2010  
Responsible for solving IT issues in Linux and Windows PCs at the Institute of Robotics and Intelligent Systems.

**Computer Science Intern** TU Berlin, Germany Summer 2005  
Designed a mini content management system for the events and courses for Fak. 3 of the Technical University of Berlin. Contributed in the design of a geo-based portal for the institutes and universities of Berlin.

**Beta-testing Intern** Institute for Language and Speech Processing Summer 2004  
Greece  
Performed beta-testing on ‘Simfonia’, a greek-language spell-checking tool for Microsoft’s Word.

**Laboratory Assistant** NTUA, Greece 2002-2005  
Performed exercise sessions for the courses of Introduction to Programming (PASCAL) and Programming Techniques (C), and provided feedback and assistance to more than 60 students throughout 4 semesters.

## TECHNICAL SKILLS

Development (best-to-worst): Matlab, C++, Qt4, OpenCV, C, PHP, OSLO, C#, NX4.  
Machining: Milling, Lathing, Drilling, Versa Laser. Operating Systems (best-to-worst): Linux, Mac OS X, Windows XP/Vista/7.

## HONORS AND AWARDS

ETH Travel Support for the Int. Conf. on Robotics and Automation, Alaska, 2010.  
Member of the World Champion ETH Team at the Nanogram League of Robocup, Austria, 2009.  
Best Conference Paper Finalist and Best Student Paper Finalist at the Int. Conf. Biomedical Robotics and Biomechatronics, Arizona, 2008.  
Greek Chamber of Engineers Award for overall academic performance (2001-2006), 2008.  
Best Presentation Award and Gold Medal at the Int. Genetically Engineered Machines Competition, MIT, Massachusetts, 2007.  
Chr. Papakyriakopoulos, and N. Kritikos mathematics awards, NTUA, Greece, 2002–2003.  
Ranked 1<sup>st</sup> among 300 students during 2001–2002, NTUA, Greece, 2002.  
State Scholarship Foundation (IKY) award for excellent performance, NTUA, Greece, 2002.  
Best Student Project Award for “Reducing Energy Consumption in School Buildings”, Greece, 2000.  
Hellenic Ministry of Education Award for outstanding national-wide performance at the university entrance examinations, 2000.

## ACADEMIC PUBLICATIONS

- C. Bergeles, K. Shamaei, J. J. Abbott, and B. J. Nelson, “*Single-Camera Focus-Based Localization of Intraocular Devices*,” IEEE Trans. Biomedical Engineering, vol. 57, no. 8, pp. 2064–2074, 2010. [journal]
- L. Zhang, J. J. Abbott, L. Dong, K. Peyer, B. E. Kratochvil, H. Zhang, C. Bergeles, and B. J. Nelson, “*Characterizing the Swimming Properties of Artificial Bacterial Flagella*,” Nano Letters, vol. 9, no. 10, pp. 3663–3667, 2009. [journal]
- O. Ergeneman, C. Bergeles, M. P. Kummer, J. J. Abbott, B. N. Nelson, “*Wireless Intraocular Micro-robots: Opportunities and Challenges*,” J. Rosen, B. Hannaford, and R. Satava, editors, Surgical Robotics: Systems, Applications, and Visions. In Press. [book chapter]
- C. Bergeles, M. P. Kummer, B. E. Kratochvil, J. J. Abbott, and B. J. Nelson, “*Ex-vivo Experiments with Intraocular Microrobots*,” Poster Presentation, in Proc. IEEE Int. Conf. Robotics and Automation (ICRA), Workshop on Mesoscale Robotics for Medical Interventions, 2010, Anchorage, AK, USA. [conference]
- C. Bergeles, K. Shamaei, J. J. Abbott, and B. J. Nelson, “*Wide-Angle Localization of Intraocular Devices from Focus*,” in Proc. IEEE/RSJ Int. Conf. Intelligent Robots and Systems (IROS), pp. 4523–4528, 2009, St. Louis, MO, USA. [conference]
- C. Bergeles, K. Shamaei, J. J. Abbott, and B. J. Nelson, “*Wide-Angle Intraocular Imaging and Localization*,” in Proc. Int. Conf. Medical Image Computing and Computer Assisted Intervention (MICCAI), pp. 540–548, 2009, London, UK. [conference]
- C. Bergeles, G. Fagogenis, J. J. Abbott, and B. J. Nelson, “*Tracking Intraocular Microdevices Based on Colorspace Evaluation and Statistical Color/Shape Information*,” IEEE Int. Conf. Robotics and Automation (ICRA), pp. 3934–3939, 2009, Kobe, JP. [conference]
- C. Bergeles, K. Shamaei, J. J. Abbott, and B. J. Nelson, “*On Imaging and Localizing Untethered Intraocular Devices with a Stationary Camera*,” IEEE RAS/EMBS Int. Conf. Biomedical Robotics and Biomechatronics (BioRob), pp. 489–494, 2008, Scottsdale, AZ, USA, **Finalist, Best Student Paper and Best Conference Paper**. [conference]

K. Shamaei, C. Bergeles, J. J. Abbott, and B. J. Nelson, “*Ophthalmoscopy Using Direct Sensing of the Flat Aerial Image Created by an Aspheric Lens*,” WO 2010/034502 A2, 2008. [international patent]

C. Bergeles, and P. Maragos, “*Tracking Moving Objects with Emphasis on Human Gestures*,” NTUA Diploma Thesis, 2006 (in greek). [thesis]

## MEDIA PUBLICITY

2010, Science et Vie Junior: Des microrobots dans le corps humain. [in french]

2009, New Scientist: Rise of the Medirobots.

2009, ETHLife: “MagMite” outperforms the competition.

2008, Nouvo, TSR: Cherie, j’ai retrechi le medecin!. [in french].

2008, The Economist: Swallow the surgeon.

2007, ETHLife: Gold fuer gebildete Bakterien. [in german]

## EXTRACURRICULAR ACTIVITIES

**Ski-Weekend Co-Organiser**                      ETH Zurich    Winter 2010  
Les Diablerets, Switzerland

Co-organised a 3-day ski weekend for 90 international participants, including lunch, dinner, and voluntary ski/snowboard lessons.

**Co-Me RNW Co-Organiser**                      ETH Zurich    Summer 2010  
Zurich, Switzerland

Co-organised a 2-day networking and research workshop for 50 participants, including plenary talks, lab tours, hands-on demos, and banquet.

**IAESTE Zurich LC Member**                      ETH Zurich    2008–now  
Zurich, Switzerland

Member of the marketing team for the local committee of IAESTE in Zurich. Responsible for recruiting new members, and organizing marketing events.

**IEEE SB Board Member**                      National Technical University of Athens                      2005–2006  
Athens, Greece

Board member of the IEEE Student Branch at the National Technical University of Athens. Responsible for member recruitment and marketing.

## ADDITIONAL EDUCATION

**Surgical Robotics**                                      University of Washington, Washington                      Summer 2010

The Biorobotics Laboratory of the University of Washington organized a week-long series of lectures on the state-of-the-art of surgical robotics.

**Synthetic Biology**                                      ETH Zurich, Switzerland    Summer 2007

Participated in the design and synthesis of new genetic code for E.coli, to give the bacterium the ability to recognize a chemical that it was trained for. We defended our design at the annual Genetically Engineered Machines Competition at MIT, Boston, and won the best presentation award and a gold medal against ~ 40 top-tier schools.

**Biomedical Imaging**                                      ETH Zurich, Switzerland    Summer 2007

The Center for Imaging Science and Technology at the ETH Zurich organized a two-week long summer school on multiscale imaging modalities.

**Computer Science** FORTH, Greece Summer 2006

The Foundation for Research and Technology (FORTH) in Crete, Greece, organized a week-long series of seminars under the theme “Robots Intelligently Interacting with People”. The international participants were selected based on recommendations and curriculum, and were sponsored by the Onassis Foundation.

**C# Certification** Athens, Greece Winter 2006

Received Microsoft’s C# certification by attending a week-long series of seminars and workshops.

**Computer Science** FORTH, Greece Summer 2004

The Foundation for Research and Technology (FORTH) in Crete, Greece, organized a week-long series of seminars under the theme “The Nanotechnology Revolution”. The international participants were selected based on recommendations and curriculum, and were sponsored by the Onassis Foundation.

## LANGUAGE SKILLS

Greek - *Native speaker*.

English - *Excellent* - Proficiency of Michigan, Proficiency of Cambridge.

French - *Intermediate* - Delf 1<sup>er</sup> Degree.

German - *Basic/Intermediate* - 1 year studies, lived in Germany and Switzerland for 5 years.

Chinese - *Beginner* - 2 years of studies, but no recent practice.

## HOBBIES

Building and painting model ships, airplanes, figurines, etc.

Playing the piano: I’ve recently developed a love for blues, but I need to practice more...

Dancing salsa: altogether for over two years, with some breaks though...

Intermediate snowboarder: the hobby to start when you are near the Alps!

Laser jollen sailor: I have a license, and working my way to buying a small boat.