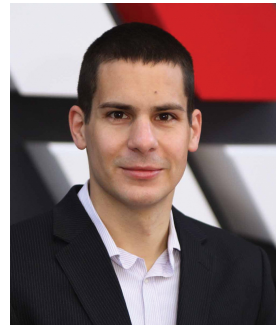


## Tamás Haidegger, Ph.D.

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### PERSONAL INFORMATION

Date of birth: Dec. 08, 1982  
Nationality: Hungarian  
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Address: *Bécsi út 96/b*  
*Budapest, 1094*  
*Hungary, EU*

**Current occupation: adjunct professor / R&D manager / start-up CEO**

### RESEARCH INTERESTS

Medical robotics, Image-guided surgery, Teleoperation, Surgical education and skill assessment, Control and filtering theory, Hand hygiene education and control

### ACADEMIC EXPERIENCE

- **Adjunct professor** *February 2013–*  
**Antal Bejczy Center for Intelligent Robotics, Óbuda University (ÓU),  
Budapest, HU**  
deputy director
  - Key research areas:
    - \* Cloud robotics
    - \* Human-centered robotics, including health care applications
    - \* Long distance teleoperation control (collaborator: “Politehnica” University of Timișoara, RO)
- **Adjunct professor** *January 2012–January 2013*  
**Laboratory of Biomedical Engineering, Budapest University of Technology and Economics (BME)**  
Dept. of Control Engineering and Information Technology (IIT), Budapest, HU
  - Key research areas:
    - \* Intra-operative electromagnetic tracking
    - \* Image-guided patient motion tracking and compensation
    - \* Control theory for long-distance telesurgical applications
    - \* Minimally invasive surgical education and training
- **Research faculty** *September 2010–December 2011*  
**Laboratory of Biomedical Engineering (BME IIT)**  
Key research area: computer-integrated surgical systems and technologies
- **Post-doctoral fellow** *May–September 2011*  
**Austrian Center for Medical Innovation and Technology (ACMIT),  
Wiener Neustadt, AT**
  - Robot-aided gynecological brachytherapy (collaborator: Queens University, Kingston, ON)
- **Visiting research fellow** *January–April 2011*  
**Center of Biomedical Engineering and Physics, Medizinische Universität Wien (MUW), Vienna, AT**
  - Robot-aided gynecological brachytherapy
  - Advisor: Prof. Wolfgang Birkfellner

- **Visiting scholar** *October 2007–October 2008*  
**Johns Hopkins University (JHU)**, Center for Computer-Integrated Surgical Systems and Technology (CISST ERC)
  - Image-guided robotic skull base drilling project
  - Advisor: Prof. Peter Kazanzides
  
- **Research assistant** *January–July 2004*  
**KFKI RMKI**, Biophysics Group
  - Involvement in the RoboCup project
  - Advisor: Prof. Péter Érdi
  
- **R&D manager** *August 2011–*  
**ACMIT**, Wiener Neustadt, AT
  - Key research area for *Simulation, Work-Flow and Usability Analysis (RA4)*:
    - \* Computer-assisted surgical simulation, education and training
    - \* Objective hand hygiene control; (collaborators: BME, HU, Hôpitaux Universitaires de Genève, CH & National University Hospital, Singapore)
  
- **Chief Executive and Chief Technology Officer** *November 2011–*  
**Clariton Ltd.**, Budapest, HU
  - Principal investigator of the research on hand hygiene control (2009–)
  
- **Innovation consultant** *March 2013–*  
**BME, Technology Transfer Office**, Budapest, HU
  - Mentor for student innovation projects
  
- **Professional intern** *September 2010–January 2011*  
**ACMIT**, Wiener Neustadt, AT
  - Developing image guidance for robotic gynecological brachytherapy
  - Advisors: Prof. Gábor Fichtinger & Dr. Gernot Kronreif

BUSINESS  
EXPERIENCE

SUMMARY OF  
PUBLISHING  
ACTIVITY

**Complete list of publications at BME Mycite**

- Total number of publications: 113
- Peer reviewed publications: 68
- Patent: 1
- Independent citations: 88 & 3 recensions
- Total Impact Factor: 10.034

SUMMARY OF AD-  
VISORY/TEACHING  
ACTIVITY

**Involvement in numerous courses**

*2006–*

- Electrical and biomedical engineering laboratories (*B.Sc. & M.Sc.*)
- Process control (*M.Sc.*)
- Fundamentals of biological and engineering systems (*M.Sc.*)
- Modern surgical techniques and technologies (*M.D. program*)

Total number of students supervised: 28

- Successful B.Sc. defenses: 2
- Successful M.Sc. defenses: 10 & 4 in progress
- Students' Scientific Circle (TDK) papers: 3

EDUCATION

**Budapest University of Technology and Economics**

*2001–2011*

Ph.D. in Electrical Engineering (2011, *summa cum laude*)

- Thesis: *Theory and Method to Enhance Computer-Integrated Surgical Systems*
- Supervisor: Prof. Zoltán Benyó
- Advisors: Prof. Imre Rudas & Prof. József Sándor

M.Sc. in Biomedical Engineering (2008, *summa cum laude*)

- BME/Semmelweis University (SE) joint program
- Thesis: *Improving the Accuracy and Safety of a Robotic System for Neurosurgery*
- Supervisors: Prof. Zoltán Benyó & Prof. Peter Kazanzides

M.Sc. in Electrical Engineering (2006, *summa cum laude*)

- Thesis: *Control of Redundant Multi-Manipulator Systems*
- Supervisor: Prof. István Harmati

LANGUAGE SKILLS

- *English*—fluent (*advanced level state exam*, 2000)
- *French*—intermediate (*intermediate level state exam*, 2000)
- *German*—basic

COMPUTER SKILLS

Advanced hardware and software knowledge and experience

- *Programming languages*—MATLAB, C, C++, ARPS
- *Software*—Microsoft Windows and Office products
- *Open source*—Linux, Latex, Slicer 3D

PROFESSIONAL  
TRAINING AND  
EXPERIENCE

In biomedical engineering

- Surgery for Engineers course; *Johns Hopkins Medical Institute* (2008, Baltimore, MD)
- Graduate Student Project@Singapore scholarship; *Contact Singapore* (2010, Singapore)
- Participation in the NSF/IEEE Winter School on Medical Robotics and Computer-Integrated Interventional Systems (MRCIIS); *JHU* (2009, Baltimore, MD)
- Experience@Singapore—Engineering and Technology program; *Contact Singapore* (2009, Singapore)
- Participation in the 2<sup>nd</sup> & the 3<sup>rd</sup> “Summer European University on Surgical Robotics”; *LIRMM*, (2005, 2007, Montpellier)

In innovation management

- Intern with *Erasmus for Young Entrepreneurs* (2012–13, Wiener Neustadt)
- Spin-off Management course; *Innostart Center* (2009)
- Biotech Manager course; *Hungarian Biotech Association—MBSZ* (2006–08)
- Biotechnology Leader Academy course; *Semmelweis Innovations—SI & MBSZ* (2010–11)
- Semmelweis International BioEntrepreneurship program—SIBE; *SI* (2011)
- EEF Venture Accelerator course; *European Entrepreneur Foundation & CEU Business School* (2011)

In project & event management

- Co-organizer of the *EuroSurge—Technology Transfer and Innovation in Robotic Surgery Workshop, European Robotics Forum* (2013, Lyon)
- International organizer of the *IRCAD/IEEE B.E.S.T. Innovation in Minimally Invasive Surgery* course (2012, Strasbourg)
- Main organizer of the *1<sup>st</sup> BME-MAVE International Workshop on Computer-Integrated Surgery* (2011, Budapest)
- Main organizer of the *MATE CIS Symposia I-II* (2008–09, Budapest)
- Co-organizer of the *GE Healthcare-MAVE seminar series on medical software* (2008–09, Budapest)
- Head organizer of the *ACM-ICPC Central European Programming Competition’s* regional finals (2004–06, Budapest)

- Involvement in the organization of the *International 24-hour Programming Contest* for 5 years (head organizer 2004–05, Budapest)
- Project Management course; *Dr. Prónay & Dr. Pap* (2005)
- Involvement in numerous national and international conferences

## AWARDS AND RECOGNITIONS

### Awards and scholarships for scientific merit

- Hungarian Academy of Sciences—János Bolyai Research Scholarship (2013–15)
- 19<sup>th</sup> MMVR Medicine Meets Virtual Reality—Poster Award (2012)
- BME Doctoral Candidate Scholarship (2009/10, 2010/11)
- Werner von Siemens Excellence Award (2009)
- ATA08—Best student paper contest; finalist (2008)
- Hungarian Chamber of Engineers’ Diploma Award (2008)
- Pro Progressio Foundation Diploma Scholarship (2008)
- 16<sup>th</sup> IAA Humans in Space Symposium—Poster Award; 2<sup>nd</sup> Prize (2007)
- HTE Diploma Award; 2<sup>nd</sup> Prize (2006); merit (2008)
- Infopark Foundation Diploma Award (2006)
- MATE Diploma Award; 1<sup>st</sup> Prize (2006, 2008)
- Hungarian Republic Scholarship (2005/06, 2006/07, 2007/08)
- BME University Scholarship (2004/05/I–II., 2005/06/I.)

### Innovation awards

*For developing a device enabling the objective control of medical hand hygiene*

- *European Investment Bank Institute—EIB Social Innovation Tournament*; 1<sup>st</sup> Prize in team (2012, Luxembourg)
- *Best of Biotech—LISA MedTech* award in team; AWS, LISA (2012, Vienna)
- *European Young Innovator of the Year* award; EYIF (2012, Brussels)
- Singularity University, Global Impact Competition CEE&SEE; finalist (2012, Budapest)
- Innovact Campus Awards 2011, European Innovation Forum; 1<sup>st</sup> Prize in team (2011, Reims)
- ICPIC—*Innovation Academy award*; 1<sup>st</sup> Prize in team (2011, Geneva)
- IEEE Presidents’ Challenge: Change the World; *Outstanding Student Humanitarian Prize* in team (2011)

### Leadership and entrepreneurship awards

- *Award for Successful Entrepreneurship—Start-up of the month*; Hungarian Ministry of Economics (2013)
- *European Venture Contest—Health Care* semi-finalist in team (2012, Aarhus)
- *ACES Academic Enterprise Awards—The Young Entrepreneur Award*; Science—Business (2012, Brussels)
- *Kairos 50 (K50)* recognition (2012, New York)
- JEREMIE Venture Contest; finalist in team (2011, Budapest)
- *IEEE Student Enterprise Award*; in team (2011)
- Intel Challenge—Europe, Business plan competition, semi-finalist in team (2011, Sopot)
- Spin-off Planéta, Hungarian Business Plan competition, 1<sup>st</sup> Prize in team (2011, Budapest)
- *Student Leader of the Year* award; FDE, MOSZ, HVG (2005)

### Outgoing fellowships and travel awards

- Erasmus for Young Entrepreneurs fellowship; ACMIT, AT (2012–13, 4 months)
- Hungarian Eötvös post-doctoral fellowship; ACMIT, AT (2012, 6 months)
- Hungarian Eötvös post-doctoral fellowship; ACMIT, AT (2011, 5 months)
- OMAA/ÖeAD visiting researcher fellowship; MUW, AT (2011, 4 months)
- ERASMUS professional internship grant; ACMIT, AT (2010–11, 12 months)
- Hungarian–American Enterprise Scholarship Fund’s (HAESF) Undergraduate Fellowship; JHU, Baltimore, MD (2007–08, 12 months)

- MICCAI Student Travel Award; MICCAI'11, Toronto, ON (2011)
- OKA Foundation Post-doctoral Travel Award, SPIE'11, Orlando, FL (2011)
- GSP@Singapore scholarship; in team, Singapore (2010)
- MMAA–RNA post-graduate grant; IROS'10, Taipei (2010)
- NIBIB/NIH Student Travel Fellowship; EMBC'09, Minneapolis, MN (2009)
- MMAA–RNA travel grant; NSF/IEEE Winter School on Medical Robotics—MRCIIS; JHU, Baltimore, MD (2009)
- Hungarian NKTH Mecenatúra travel grant (2005, '07, '08, '09)
- European Space Agency IAC Student Participation Program (2003, '04, '06)
- Hungarian Mobilitás—Youth in Action travel grant; European Youth Parliament, International session delegate, in team (2001, '02)

**National expert, International Organization for Standardization (ISO/TC 184/SC 2/JWG 9, 2011–)**

TC 184: Technical Committee on Automation Systems and Integration,  
SC 2: Sub-Committee on Robots and Robotic Devices,  
JWG 9: Joint Work Group on Standard for Medical Robots (WG 7 & IEC/SC 62A)  
Delegate of the Hungarian Standards Institution (MSZT)

**Member of the IEEE RAS Joint Workgroup for Ontologies for Robotics and Automation (2011–)**

Developing standards for medical robots

**External Reviewer and Expert on medical device software validation (2012–)**

For CE Certiso Medical and Hospital Technology Clearance and Validation LLC. (Budaörs)

**Advisor, International Center of Excellence in Medical Robotics—ICEMR (2011–)**

IRCAD–AITS, Show Chwan Health Care System (Changhua, Taiwan)

**Engineering consultant, Semmelweis University (2009–)**

Surgical Skill Development Unit (Dept. of Surgical Research and Technique)

**Mentor, A Journey Through Entrepreneurship program (2012)**

US Embassy–Semmelweis Innovations Entrepreneurship Course

**Memberships in professional organizations**

- **Institute of Electrical and Electronics Engineers—IEEE (2007–)**
  - \* Robotics and Automation Society (RAS)
    - Member Services Committee chair (2012–)
    - Student Activities Committee chair (2010–11, 2 years)  
*Improved the undergraduate membership by 79%, +537 members*  
*Founder of the Student Reviewing Program*
  - \* Engineering in Medicine and Biology Society (EMBS)
  - \* Industrial Electronics Society (IES)
- **Scientific Society of Measurement, Automation and Informatics—MATE (2006–)**
  - \* Secretary of the Control Engineering Chapter (2007–)
- **Electrical Engineering Students' Hungarian Association—MAVE (2002–)**

- \* Alumni (2006–)
- \* Member of the board (2003–05)
- Medical Image Computing and Computer Assisted Intervention Society—MICCAI (2011–)
- MTA—Hungarian Academy of Sciences, Public Body, VI. Section on Engineering Sciences (2011–)
- Society of Photographic Instrumentation Engineers—SPIE (2010–)
- Society for Medical Innovations and Technology—SMIT (2009–)
- Hungarian Astronautical Society—MANT (2008–)
- Scientific Society of Mechanical Engineering—GTE (2008–)
- John von Neumann Computer Society—NJSZT (2004–)
- Scientific Association for Infocommunications Hungary—HTE (2004–)

### Conference organizing committees

- Hungarian Surgical Society—Section of Surgical Endoscopy, XV. Congress (Herceghalom, 2013)
- 9<sup>th</sup> IEEE International Conference on Computational Cybernetics—ICCC (program co-chair, 2013, Tihany)
- Workshop on Technology Transfer and Innovation in Robotic Surgery at the 2013 European Robotic Forum—ERF (Lyon, 2013)
- IFAC Symposium on Biological and Medical Systems—BMS (2012, Budapest)
- IEEE RAS/EMBS Intl. Conf. on Biomedical Robotics and Biomechatronics—BioRob (2012, Rome)
- MAVÉ–BME 1<sup>st</sup> Intl. Workshop on Computer-Integrated Surgery (chair, 2011, Budapest)
- IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems—IROS (2011, San Francisco)
- IEEE/ASME Intl. Conf. on Advanced Intelligent Mechatronics—AIM11 (2011, Budapest)
- EU FP7 Future and Emerging Technologies—FET11; Budapest (2011)
- 1<sup>st</sup> Intl. Conf. on Applied Bionics and Biomechanics—ICABB (2010, Venice)

### Publishing/editorial service

- **Editor:**
  - \* Associate Editor for Journal of Infectious Diseases Letters, Bioinfo Publications (2013–16)
  - \* Associate Editor for World Research Journal of Medical Science, Bioinfo Publications (2013–16)
  - \* Guest editor of a special issue of the J. of Artificial Intelligence in Medicine; on “AI Methods in Telesurgery” (2013)
  - \* “Proc. of the MAVÉ–BME 1<sup>st</sup> Intl. Workshop on Computer-Integrated Surgery,” ed., T. Haidegger. *BME*, Budapest, pp. 1–55, 2011, (*in press*).
  - \* “Proc. of the BME–MATE CIS Mini-Symposia I–II. (*in Hungarian*),” eds., Z. Benyó, J. Somló & T. Haidegger. *BME*, Budapest, ISBN: 978-963-421-589-9, pp. 1–52, 2009.
  - \* D. Marx & B. Bendek, “International 24-hour Programming Contest, 2000–2005: Problem Sets,” ed., T. Haidegger. *PANEM*, Budapest, ISBN: 963-54-5460-0, pp. 1–233, 2006.
- **Reviewing for conferences:** IEEE/RJS IROS, IEEE ICRA, IEEE EMBC, IEEE BioRob, RAAD, Automatica, ICABB, SPIE–MI, MICCAI, IFAC WC, ICAISC, RMC, SYROCO, UbiRobot, CINTI
- **Reviewing for journals:** IEEE Trans. on Biomedical Engineering, Trans. on Mechatronics, Intl. J. of Computer Assisted Radiology and Surgery, J. of Healthcare Engineering, J. of Women’s Health, J. of Artificial Intelligence in Medicine, Australian Journal of Mechanical Engineering and J. of Aeronautics & Aerospace Engineering

OTHER SKILLS AND  
EXPERIENCE

- Extensive experience in organizing international professional events
- Ability to work in team, either as a leader or a member
- Good communication skills; fluent in negotiating
- Experience as a translator (English–Hungarian)
- B category driving licence (2003–)

HOBBIES

- Wall climbing, photography, journalism and turtles
- Professional blog on surgical robotics: [SurgRob.blogspot.com](http://SurgRob.blogspot.com) (2007–)

Budapest, 2013