Ass.-Prof DI Dr.techn.
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Main Research Areas

biomedical modeling and simulation, model based diagnosis
biomedical devices, sensors and signal processing
cellular electrophysiology
cardiac physiology and medical image processing

Education

November 2013 PhD (Dr. techn.) in technical sciences, University for Health Sciences, Medical Informatics and Technology (UMIT), Hall in Tyrol, Austria: "Focused hybrid estimation for online monitoring of dynamic multi-mode systems", Supervisor: prof. M. Hofbaur
Feburary 2008 MSc. In Telematics, Graz University of Technology (TU Graz), Graz, Austria: "Self-Localization of soccer robots of the middle size league". Supervisor: Prof. H. Bischof
November 2005 BSc. In Telematics, TU Graz, Graz, Austria
June 2000 Leaving certificate of the Academic high school Sacré Coeur Graz

Academic Milestones / Positions & Experience

01/01/2016 - Deputy Head of the Institute of Health Care Engineering
with European Testing Center of Medical Devices, Graz University of Technology, Graz, Austria
(maternity leave from Oct. 2016 – March 2018)
01/11/2015 - Research Assistant at the Institute of Health Care Engineering
with European Testing Center of Medical Devices, Graz University of Technology, Graz, Austria
01/07/2010 – 31/10/2015 Research Assistant at the Institute of Electrical and Biomedical Engineering, University for Health Sciences, Medical Informatics and Technology (UMIT), Hall in Tirol, Austria
01/01/2010 – 30/06/2010 Research Assistant at the Institute of Institute of Automation and Control Engineering, University for Health Sciences, Medical Informatics and Technology (UMIT), Hall in Tirol, Austria
01/01/2008 – 31/12/2010 Research Assistant at the Institute of Automation and Control, Graz University of Technology, Graz, Austria
03/2009 – 09/2009 Teaching Assistant at the Institute of Signal Processing and Speech Communication, Graz University of Technology, Graz, Austria

Research Achievements

Selected Papers

1. **A novel network-based approach for discovering dynamic metabolic biomarkers in cardiovascular disease /** Baumgartner C., Spath-Blass V., Niederkofler V., Bergmoser K., Langthaler S., Lassnig A., Rienmüller T., Baumgartner D., Asnani A., Gerszten R. E. PloS ONE 13(12) 2018
2. **Standardizing the complication rate after breast reduction using the modified Clavien-Dindo-Classification /** Winter, R., Haug, I., Lebo, P., Grohmann, M., Parvizi, D., Cambiaso-Daniel, J., Tuca, A., Rienmüller, T., Spendel, S., Kamolz, L.-P. Surgery 2017;161(5):1430-5.
3. **Quantitative estimation of left ventricular myocardial perfusion based on dynamic CT scans** / Rienmüller, T., Baumgartner, C., Handler, M., Makarenko, V., Krestinich, I.M., Zhorzholiani, S.T.,

Bockeria, L., Ourednicek, P., Rienmüller, R D-A-CH Dreiländertagung BMT 2013, Graz, Austria, Proceedings pp. 651-2.

4. **Mode set focused hybrid estimation** / Rienmüller, T., Hofbaur, M., Travé-Massuyés, L., Bayoudh, M. Int J Appl Math Comput Sci (AMCS) 2013;23(1):131-44.
5. **Odometry-based fault diagnosis for pseudo-omnidirectional wheeled mobile robots** / Rienmüller, T., Gruber, C., Brandstötter, M., Hofbaur, M. 22nd Workshop on Principles of Diagnosis 2011, Murnau, Germany.
6. **Overcoming nondiscernibility through mode-sequence analytic redundancy relations in hybrid diagnosis and estimation** / Hofbaur, M., Travé-Massuyés, L., Rienmüller, T., Bayoudh, M. 21st International Workshop on Principles of Diagnosis (DX) 2010, Portland, Oregon, USA.
7. **Hybrid estimation through synergic mode-set focusing** / Rienmüller, T., Bayoudh, M., Hofbaur, M.W., Travé-Massuyés, L. IFAC SAFEPROCESS Symposium 2009, Barcelona, Spain.
8. **Hybrid estimation through synergetic mode-set filtering** / Rienmüller, T., Bayoudh, M., Hofbaur, M., Travé-Massuyés, L. 20th International Workshop on Principles of Diagnosis (DX),2009, Stockholm, Sweden.
9. **Qualitative abstraction of piecewise affine systems** /Hofbaur, M.W., Rienmüller, T. Workshop on qualitative reasoning 2008, Boulder, Colorado, USA.

10 most important additional research achievements

1. **Invited Talks:**

Rienmüller T., Ourednicek, P., Rienmüller, R., Baumgartner, C. Mit Iterative Model Reconstruction (IMR) eröffnen sich neue Möglichkeiten in der Herzbildgebung. Bildgebung mit Herz 2013, Salzburg, Austria.
Rienmüller T., Gruber, C., Brandstötter, M. Hofbaur, M. Odometry-Based Fault Diagnosis for Pseudo-Omnidirectional Wheeled Mobile Robots. Guest lecture at NASA Ames Research Center 2011, Moffett Field, CA, USA.

2. **Organization of Conferences, Workshops:**

ÖGBMT Jahrestagungen und Tiroler Medizintechnikforum (Annual Meeting 2012, 2014 and 2015), UMIT, Hall in Tyrol, Austria
Insight2014, Hall in Tyrol, Austria, March 2014
Insight2016, Klagenfurt, Austria, April 2016

3. **Research Projects and Funding:**

LOGOS-TBI: Light-controlled Organic Semiconductor Implants for Regeneration after TBI; Cooperation partners: MedUni Graz, Linköping University; Funding: Austrian Science Fund FWF, Young independent Researcher Groups, total sum: € 2.200.000, € 401.000 for my research group (start 2019, 4 years)
STEP – Conceptual design of a validation environment for the standardized examination of defibrillator pads; Cooperation partner: Liimtec GmbH; Funding: FFG - Österreichische Forschungsförderungsgesellschaft € 12.500 (03/16 – 10/16)
Quantitative Bestimmung der Myokardperfusion mittels dynamischer CTUntersuchungen; Funding: Tiroler Wissenschaftsfonds TWF € 5.000 (10/13 – 10/15)
Dynamic myocardial perfusion (clinical trial registered at Gov. Trial NCT02361996); Cooperation partners: Bakulev Scientific Center of Cardiovascular Surgery, Moscow and Fedorovich Klinikasi, Taschkent, Usbekistan; Funding: Philips Healthcare, (02/14 – ongoing)

4. **Prizes/awards**

2016: Certificate of Merit of the European Society of Cardiac Radiology (ESCR), poster award, ESCR2016 Krakow, Poland
2014: Certificate of Merit of the European Society of Cardiac Radiology (ESCR), poster award, ESCR2014 Paris, France
2008: Goldene Lupe des Bundesministeriums für Verkehr, Innovation und Technologie, (BMVIT) mit dem RoboCup Team der TU Graz. (award of the Federal Ministry of Transport, Innovation and Technology, BMVIT with the RoboCup team of Graz University of Technology)

5. Peer review activities

Refereed journals

Mathematical and Computer Modelling of Dynamical Systems (MCMDS), since 2014
International Journal of Applied Mathematics and Computer Science (AMCS), 2013
Methods of Information in Medicine (Methods Inf Med), 2014
Journal of Intelligent and Robotic Systems (JINT), 2013 – 2015

Reviewing for Conferences

AMIA 2018 Annual Symposium
Austrian Society for Biomedical Engineering (ÖGBMT Jahrestagungen und Dreiländertagungen, since 2014)
IEEE Multi-Conference on Systems and Control (MSC 2014)
IEEE International Conference on Robotics and Automation (ICRA 2013)
International Workshop on Principles of Diagnosis (DX 2010)

6. Editorials

Brandstötter, M., Rienmüller, T. (Eds., equally contributed) Insight 2014, In: UMIT-Lecture Notes in Biomedical Computer Science and Mechatronics, Volume 3, 2014, ISBN: 978-3-9503191-2-5.

7. International cooperation partners

Harvard Medical School, Beth Israel Deaconess Medical Center, Boston, Massachusetts, USA (Robert E. Gerszten.)
Bakulev Scientific Center of Cardiovascular Surgery, Moscow (Leo Bokeria, Prof. Vladimir Makarenko)
LAAS-CNRS, Toulouse, France (Louise Travé-Massuyès, Research Director — CNRS)
Fedorovich Klinikasi, Taschkent, Usbekistan (Maksudov Muzaffar Fathullaevich)
Division of Physics and Electronics, Linköping University Sweden (Eric Glowacki)

8. Membership in scientific organizations

OeGBMT - Austrian Society for Biomedical Engineering
BioTechMed Graz (since 2016)

9. Master and PhD supervision

PhD co-supervisor ongoing: Sonja Langthaler
Master supervisor ongoing: Michaela Hawranek, Robert Pasold, Daniel Ziesel, Karl Strohmayer
Finalized: Melanie Polsinger-Wallgram, Katharina Bost, Michael Berger, Patrik Schaffenrath, Michael Toifl

10. Committee work and study accreditation

Work group “University Didactics” (12/13–10/15)
PhD board (12/13–10/15)
Work group “Final Theses” (02/14–01/15)
Jury member “Teaching Award” (06/14–10/15)
Work group “Marketing” (11/14–10/15)
Planning and accreditation of Bachelor’s Program Mechatronics in Lienz, Tyrol, Austria (01/15 –11/15)