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March 15, 2018

# Curriculum Vitae

**Hintermüller**      **Christoph**  
*Surname*                      *Given Name*

Birthday, -place	9. February 1976, Linz
Citizenship	Austria
Marital Status	unmarried
Languages	German (native), English, French (basics), Danish (fragmentary)
Academic Degree	Dr. Dipl. Ing., MSc., MBA

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## Addresses

### Private

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## Referees

Dr. Christoph Guger

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Univ.-Ass. Dr. Marco Stampanoni

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Prof. Dr. phil. nat. Johannes Schittny

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## Education

- 09/16– Psychotherapeutisches Propädeutikum, ÖGWG, Linz, Austria
- 03/13–04/13 MBA Upgrade program "MBA Management for Engineers" at Limak Johannes Kepler University Business School, Johannes Kepler University, Linz, Austria.
- 03/10–10/11 Postgraduate Master of Science program "MSc Management for Engineers" at Limak Johannes Kepler University Business School, Johannes Kepler University, Linz, Austria.
- 06/09–07/09 Project Management for Research - Methods and Tools, advanced training course at the ETH Zürich; Switzerland
- 11/06–10/09 Postdoctoral fellowship in the micro-tomography group at the Swiss Light Source; Paul Scherrer Institute; Villigen PSI; Switzerland
- 04/03–09/06 PhD studies at the Institute for Biomedical Engineering; University for Health Sciences, Medical Informatics and Technology; Hall in Tirol; Austria
- 09/00–02/01 University of Aalborg; Erasmus study exchange program;
- 10/95–03/03 Technical University Graz; Austria: Electrical engineering with specialisation biomedical engineering;

- 10/94–05/95 jMilitary service: Paramedic training
- 09/86–06/94 Bischöfliches Gymnasium am Kollegium Petrinum Linz Final Exam in Biology, Chemistry, German, English including specialisation and Mathematics

### **Employments/Internships**

- 01/04/13–31/05/17 g.tec medical engineering OG, Schiedlberg Austria; Chief Research Officer (CRO)
- 01/06/10–31/05/17 g.tec medical engineering OG, Schiedlberg Austria; Scientific project management (Principal Investigator) and development coordination of bio-signal processing software used in clinical research, rehabilitation, personal health and ambient living applications and projects.
- 01/11/09–30/04/10 Paul Scherrer Institute, Villigen Switzerland; Improvement of the acquisition and post-processing of tomographic images at the Beamline for TOMographic Microscopy and Coherent imAging experimenTs at the Swiss Light source.
- 02/11/06–31/10/09 Paul Scherrer Institute, Villigen Switzerland; Postdoctoral fellow in the Micro Tomography group at the Swiss Light source
- 01/04/03–31/08/06 Private University for Health Sciences, Medical Informatics and Technology; Hall in Tirol; research fellow with the research project Start Y144-N04
- 01/03/00–30/06/02 Technical University Graz: research fellow and diploma thesis with the research project Start Y144-N04; Noninvasive Imaging of the Cardiac Electrophysiology
- 01/07/00–20/08/00 Siemens Vienna: Medical PSD; Internship;
- 28/06/99–08/08/99
- 16/08/99–26/09/99 Krankenhaus der Elisabethinen Linz: Internship at the medical engineering and technology service department;
- 13/07/98–23/08/98

### **Teaching**

- 01/16–01/16 Biosignal processing with respect to EEG analysis and Brain Computer Interfaces, Medical technology 2, at the Johannes Kepler University Linz, Austria
- 04/11–11/11 Master thesis in biomedical engineering at the technical University Graz: "A Steady-State Visual Evoked Potentials (SSVEP) controlled Brain-Computer Interface: Towards advanced features and classification strategies."



- 01/11–06/11 Thesis at higher-level secondary industrial and trade college LiTec, Linz Paul Hahn Strasse: "BrainPainting" along the idea of and in cooperation with Adi Hösle a German artist, various brain computer interface types were adopted to draw images with small robot carrying a pen.
- 07/07–08/07 Undergraduate thesis of a student from ENSPS-Strasbourg with the tomography group at the Swiss Light Source, Paul Scherrer Institute: "Flat-field tracking correction for optimized tomographic reconstruction"
- 04/07–08/07 Post graduate thesis Master Medical Physics ETH Zürich, "Quality guided wide field x-ray tomographic imaging" within the group tomography group at the Swiss Light Source, Paul Scherrer Institute.
- 08/03–01/04 Guidance of student from the technical college Hagenberg Upper Austria during his internship at the Private University for University for Health Sciences, Medical Informatics and Technology.
- 10/01–01/02 Technical University Graz; Institute for Electrical and Biomedical Engineering: Instructor for the laboratory course "Labor Grundlagen der Biomedizinischen Technik 1 / 2"
- 03/00–06/00
- 03/97–01/00 Volunteer teacher at the Caritas day nursery of the St. Vincent parish in Graz.

## Research

### Current Projects

Creativity Enhancement through Advanced Brain Mapping and Stimulation: a joint project within FP7 program initiated and lead by Prof. Roberto Guerrieri School of Engineering and Architecture, University of Bologna, Italy (PI representing g.tec)

### Past Projects

Brain-neural computer interfaces on track to home: Joint project within FP7 program initiated and lead by Barcelona Digital Centre Tecnològic, Barcelona, Spain (PI representing g.tec)

Virtual Embodiment, Real Re-Embodiment: joint project within the FP7 program initiated and lead by Prof. M. Slater, head of the Experimental Virtual Environments for Neuroscience and Technology Lab at Universitat de Barcelona, Spain. (PI representing g.tec)

Adaptable Ambient Living Assistant: joint project within the Ambient Assisted Living program of the EU initiated and lead by Prof. Dr.-Ing. Frank Wallhof Professor for Assistive Technologies at Jade University of Applied Sciences Wilhelmshafen, Oldenburg, Germany. (PI representing g.tec)

Rehabilitation gaming system: joint project within the Ambient Assisted Living program of the EU initiated and lead by Prof. Paul F.M.J. Verschure, head of the Synthetic, Perceptive, Emotive and Cognitive

Systems Group at Universitat Pompeu Fabra in Barcelona, Spain. (PI representing g.tec)

Assessment of heavy particle ( $^{56}\text{Fe}$ ) radiation induced changes in vascular morphology and angiogenesis of the brain and their progress over time. (Researcher, Postdoc)

#### Past Cooperation's

Influence of Nogo-A on angiogenesis and blood vessel morphology in the central nervous system (CNS). In cooperation with the group of Prof. Dr. Martin Schwab at the Brain Research Institute, ETH and University Zürich and the Institute for Zoology, University Zürich. (Support staff at PSI)

Angiogenesis in malignant brain tumors. In cooperation with the group of Prof. Dr. Nicolai Savaskan at the Brain Research Institute, ETH and University Zürich and the Institute for Zoology, University Zürich. (Support staff at PSI)

PhD Thesis Development of a Multi-Lead ECG Array for Noninvasive Imaging of the Cardiac Electrophysiology

Postgraduate Master Thesis Research and Development in Scientific Context: Chances and Risks a Small Company has to Face.

Master Thesis Modellierung der Herzoberfläche aus Teilflächen und dünnen Punktmengen; German;  
(Modeling of the cardiac surfaces using partial surfaces and sparse point sets)

	First / Total	Note
Publications	2 / 2	
(Summary)	7 / 37	
	16 / 60	
	0 / 0	

#### Awards

Finalist in the IFMBE Young Investigator Competition of the Medical Physics and Biomedical Engineering World Congress 2009, 11<sup>th</sup> Congress of the International Union for Physical and Engineering Sciences in Medicine (IUPESM).

#### Reviews

2012 17th Annual CyberPsychology and CyberTherapy Conference (CYBER17), Brussels

Reviews in Human Factors & Ergonomics - Volume 9. "Human Performance in Teleoperations and Beyond."

2011 IEEE Symposium on Business, Engineering and Industrial Applications (ISBEIA2011)

2011 International Conference on Business, Engineering and Industrial Applications (ICBEIA 2011)

IEEE Transactions on Biomedical Engineering

## Memberships

08/12–	IEEE and IEEE Engineering in Medicine & Biology Society
10/11–	Limak Club (Alumni Club)
04/06–	Austrian Society for Biomedical Engineering
07/94–	Verband der Altpetriner (Alumni Club)
12/94–12/99	Red Cross Austria

## Other Activities

12/94–12/99	Volunteer of the Austrian Red Cross at the division in Bad Leonfelden.
10/98–01/99	Collaboration in the first-year students orientation program of the students council at the Technical University Graz.
10/97–01/98	

## Scientific Interests

Noninvasive multimodal Imaging: For example, noninvasive imaging of the cardiac electrophysiology: the recording equipment, development of new use cases and appropriate source models.

Tomographic and Radiographic Imaging For example tomographic microscopy applications including image acquisition, data processing, optimization of resource usage, development of acquisition protocols and post processing algorithms for multimodal and multiscale tomographic data sets.

Parameter Extraction For example 3D morphometric analysis of vascular structures: hierarchical imaging, graph based analysis of the capillary networks and the vascular tree, improving and optimizing the extraction of the 3D structure and corresponding morphometric parameters. Or systematic analysis and exploitation of physiological signals like ECG, respiration or galvanic skin response with respect to stress, fear, anger etc. Applications range from biofeedback during rehabilitation training to closed loop control of robots during human-robot cooperative tasks.

Bio-Signal processing: Signal and image acquisition, processing and analysis in general: electronic recording systems, signal transducers, electrodes and related problems.

Optimization Strong interest in optimizing the use of resources and reducing processing time in the above fields, by selection of appropriate algorithms, materials, resources and data structures dependent on the task, related boundary conditions and clinical/biomedical requirements.

## Scientific Skills

Computational	Numerical modeling and inverse problems
	Numerical regularization

	Numerical optimization
	Score and probability based classification and validation methods
Imaging	Microscopic tomography
	Phase contrast and scatter tomography
	Image segmentation and structural analysis
	Morphological analysis
Biosignal processing	Signal acquisition and processing
	Algorithms for extraction of physiological features
	Signal classification, validation and interpretation
	Brain-Computer interfaces for control and human computer interaction

## Non Scientific Projects

Synchrotron X-ray tomographic Microscopy Software	Software system for processing tomographic data recorded at the beamline for TOMographic Microscopy and Coherent rAdiology experimenTs (TOMCAT) of the Swiss Light Source (SLS) at Paul Scherrer Institute. Reimplemented, improved and extended the program used to correct and normalize the angular X-Ray projections. Enhanced the Web-interface used for previewing the tomographic data and to tune the reconstruction parameters.
Aspell	Spellchecker program for Unix/Linux also ported to Windows ( <a href="http://aspell.net">http://aspell.net</a> ) Added interfaces for loading text filters at runtime and predefining combinations of filters and their configuration parameters. Implemented filter hiding text from the spell checker which is enclosed within a open and close tag;
Blinkenarea	Models and Miniature's of the Blinken-lights (Berlin) and ARCADE (Paris); ( <a href="http://www.blinkenarea.org">http://www.blinkenarea.org</a> ) Maintained the Press-kit.
WhatTheHack	Community Event ( <a href="http://wiki.whatthehack.org">http://wiki.whatthehack.org</a> ) Participation in the on site news team; was responsible for articles on lectures and events;
Project Geo-Informatics at Kollegium Petrimum	School project Geo-Informatics: Program for visualizing the election data and helped in generating the very first maps from 1991 to 1993; <a href="http://www.petrinum.at">http://www.petrinum.at</a> – >Schulinformation – >Fächer – >Informatik – >Geoinformatik (German)

## Additional Knowledge

Programming Languages	Modula 2
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	C/C++
	openVMS
	Python
	Perl
	Regular Expressions (posix, perl)
	Unix Shell
	Matlab/Simulink
	Python
	Java
	PHP
	SQL92 (Database Query Language)
Modeling, Imaging, CAD	UML
	object oriented
	Open Inventor (OpenGL based)
	ACAD
	Amira: tool for 3D Visualisation and Segmentation
	Gimp: image manipulation like Photoshop
Op. Systems	Unix/Linux
	MS-Windows
	openVMS
Text processing	MS/Open - Office
	TeX/Latex
Web	Nucleus/MODx: online content management system (CMS)

### **Hobbies**

reading, writing, painting / drawing, photography, dancing, going by bike, hiking, friends, the computer, sailing

Linz, Austria, March 15, 2018



# List of Publication

## Major

C. Hintermüller, C. Kapeller, G. Edlinger, and C. Guger, *Brain-Computer Interface Systems – Recent Progress and Future Prospects*. InTech, 2013, ch. BCI Integration: Application Interfaces, pp. 21–41, iSBN: 978-953-51-1134-4. [Online]. Available: <http://www.intechopen.com/books/brain-computer-interface-systems-recent-progress-and-future-prospects/bci-integration-application-interfaces>

C. Hintermüller, F. Marone, A. Isenegger, and M. Stampanoni, “Image processing pipeline for fast synchrotron based x-ray micro-tomographic microscopy,” *Journal of Synchrotron Radiation*, vol. 17, no. 4, pp. 550–559, July 2010.

C. Hintermüller, J. S. Coats, A. Obenaus, G. Nelson, T. Krucker, and M. Stampanoni, “3d quantification of brain microvessels exposed to heavy particle radiation,” *Journal of Physics: 9th International Conference on X-Ray Microscopy*, vol. 186, July 2008, in press.

C. Hintermüller, M. Seger, B. Pfeifer, G. Fischer, R. Modre, and B. Tilg, “Sensitivity and effort-gain analysis: Multi-lead ecg electrode array selection for activation time imaging,” *IEEE Transactions on Biomedical Engineering*, vol. 53, no. 10, pp. 2055–2066, oct 2006.

C. Hintermüller, M. Seger, B. Pfeifer, G. Fischer, and B. Tilg, “Simulation of cardiac activation patterns for checking suggestions about the suitability of multi-lead ecg electrode arrays,” *ISMBS, Lecture Notes in Computer Science*, vol. 4072, pp. 105–112, 2006.

## Books

C. Hintermüller, *Advanced Biosignal Processing and Diagnostic Methods*, C. Hintermüller, Ed. InTech, 2016. [Online]. Available: <https://www.intechopen.com/books/advanced-biosignal-processing-and-diagnostic-methods>

C. Hintermüller, C. Kapeller, G. Edlinger, and C. Guger, *Brain-Computer Interface Systems – Recent Progress and Future Prospects*. InTech, 2013, ch. BCI Integration: Application Interfaces, pp. 21–41, iSBN: 978-953-51-1134-4. [Online]. Available: <http://www.intechopen.com/books/brain-computer-interface-systems-recent-progress-and-future-prospects/bci-integration-application-interfaces>

## Papers

C. Hintermüller, C. Guger, and G. Edlinger, "Brain-computer interface: Generic control interface for social interaction applications," vol. 6691, pp. 386–392, 2011. [Online]. Available: [http://dx.doi.org/10.1007/978-3-642-21501-8\\_48](http://dx.doi.org/10.1007/978-3-642-21501-8_48)

C. Hintermüller, F. Marone, A. Isenegger, and M. Stampanoni, "Image processing pipeline for fast synchrotron based x-ray micro-tomographic microscopy," *Journal of Synchrotron Radiation*, vol. 17, no. 4, pp. 550–559, July 2010.

C. Hintermüller, J. S. Coats, A. Obenaus, G. Nelson, T. Krucker, and M. Stampanoni, "Evaluation of dose dependent structural changes in 3d brain micro-vasculature in response to heavy particle radiation exposure," *IFMBE Proceedings*, vol. 25, no. III, pp. 423–426, 2009.

C. Hintermüller, J. S. Coats, A. Obenaus, G. Nelson, T. Krucker, and M. Stampanoni, "3d quantification of brain microvessels exposed to heavy particle radiation," *Journal of Physics: 9th International Conference on X-Ray Microscopy*, vol. 186, July 2008, in press.

C. Hintermüller, M. Seger, B. Pfeifer, G. Fischer, R. Modre, and B. Tilg, "Sensitivity and effort-gain analysis: Multi-lead ecg electrode array selection for activation time imaging," *IEEE Transactions on Biomedical Engineering*, vol. 53, no. 10, pp. 2055–2066, oct 2006.

C. Hintermüller, M. Seger, B. Pfeifer, G. Fischer, and B. Tilg, "A model based approach for multi-lead ecg array layout selection," *Lecture Notes in Computer Science (MICCAI)*, vol. 4190, pp. 264–271, 2006.

C. Hintermüller, M. Seger, B. Pfeifer, G. Fischer, and B. Tilg, "Simulation of cardiac activation patterns for checking suggestions about the suitability of multi-lead ecg electrode arrays," *ISMBS, Lecture Notes in Computer Science*, vol. 4072, pp. 105–112, 2006.

T. Wälchli, A. Ulmann-Schuler, C. Hintermüller, E. Meyer, M. Stampanoni, P. Carmeliet, M. Y. Emmert, O. Bozinov, L. Regli, M. E. Schwab, J. Vogel, and S. P. Hoerstrup, "Nogo-a regulates vascular network architecture in the postnatal brain," *Journal of Cerebral Blood Flow & Metabolism*, vol. 37, no. 2, pp. 614–631, 2017, pMID: 27927704. [Online]. Available: <https://doi.org/10.1177/0271678X16675182>

M. Abu-Alqumsan, C. Kapeller, C. Hintermüller, C. Guger, and P. A., "Invariance and variability in interaction error-related potentials and their consequences for classification," *Journal of Neural Engineering*, under review., 2016, under review.

E. Tidoni, M. Abu-Alqumsan, D. Leonardis, C. Kapeller, G. Fusco, C. Guger, C. Hintermüller, A. Peer, A. Frisoli, F. Tecchia, M. Bergamasco, and A. S.M., "Local and remote cooperation with virtual and robotic agents: a p300 bci study in healthy and spinal cord injured patients," *Journal of Neural Engineering*, 2016, under review.

T. Wälchli, A. Ulmann-Schuler, C. Hintermüller, E. Meyer, M. Stampanoni, P. Carmeliet, O. Bozinov, L. Regli, M. Schwab, J. Vogel, and S. Hoerstrup, "Nogo-a regulates 3d vascular network architecture in the postnatal brain," *JCBFM.*, 2016, in Press.



F. Miralles, E. Vargiu, S. Dauwalder, M. Sola, G. Müller-Putz, S. C. Wriessnegger, A. Pinegger, A. Kübler, S. Halder, I. Käthner, S. Martin, J. Daly, E. Armstrong, C. Guger, C. Hintermüller, and H. Lowish, "Brain computer interface on track to home," *The Scientific World Journal*, vol. 2015, p. 17, 2015. [Online]. Available: <http://dx.doi.org/10.1155/2015/623896>

F. Miralles, E. Vargiu, X. Rafael-Palou, M. Solà, S. Dauwalder, C. Guger, C. Hintermüller, A. Espinosa, H. Lowish, S. Martin, E. Armstrong, and D. J. "Brain-computer interfaces on track to home: Results of the evaluation at disabled end-users' homes and lessons learnt," *Front. ICT*, vol. 2, 2015. [Online]. Available: [https://www.researchgate.net/publication/284609447\\_Brain-Computer-Interfaces\\_on\\_Track\\_to\\_Home\\_Results\\_of\\_the\\_Evaluation\\_at\\_Disabled\\_End-Users%27\\_Homes\\_and\\_Lessons\\_Learnt](https://www.researchgate.net/publication/284609447_Brain-Computer-Interfaces_on_Track_to_Home_Results_of_the_Evaluation_at_Disabled_End-Users%27_Homes_and_Lessons_Learnt)

A. Pinegger, L. Deckert, S. Halder, N. Barry, J. Faller, I. Käthner, C. Hintermüller, S. Wriessnegger, A. Kübler, and G. R. Müller-Putz, "Write, read and answer emails with a dry 'n' wireless brain-computer interface system." *Conf Proc IEEE Eng Med Biol Soc*, vol. 2014, pp. 1286–1289, Aug 2014. [Online]. Available: <http://dx.doi.org/10.1109/EMBC.2014.6943833>

C. Kapeller, C. Hintermüller, M. Abu-Alqumsan, R. Pruckl, A. Peer, and C. Guger, "A bci using vep for continuous control of a mobile robot." *Conf Proc IEEE Eng Med Biol Soc*, vol. 2013, pp. 5254–5257, 2013. [Online]. Available: <http://dx.doi.org/10.1109/EMBC.2013.6610734>

P. Gergondet, S. Druon, A. Kheddar, C. Hintermüller, C. Guger, and M. Slater, "Multi-modal humanoid control with a brain-computer interface," *IEEE TRANSACTIONS ON SYSTEMS, MAN AND CYBERNETICS, PART C, SPECIAL ISSUE*, 2012, in review.

C. Guger, B. Z. Allison, B. Grosswindhager, R. Prückl, C. Hintermüller, C. Kapeller, M. Bruckner, G. Krausz, and G. Edlinger, "How many people could use an ssvp bci?" *Frontiers in Neuroscience*, vol. 6, no. 169, 2012. [Online]. Available: <http://www.frontiersin.org/neuroprosthetics/10.3389/fnins.2012.00169/abstract>

C. Kapeller, C. Hintermüller, M. Abu-Alqumsan, T. Schauß, B. Großwindhager, V. Putz, R. Prückl, A. Peer, and C. Guger, "Ssvp based brain-computer interface combined with video for robotic control," *IEEE Trans. Comp.Intel.*, Jan 2012.

K. Mader, F. Marone, C. Hintermüller, G. Mikuljan, A. Isenegger, and M. Stampanoni, "High-throughput full-automatic synchrotron-based tomographic microscopy," *Journal of Synchrotron Radiation*, vol. 18, pp. 117–124, January 2011.

D. Haberthür, C. Hintermüller, F. Marone, J. C. Schittny, and M. Stampanoni, "Radiation dose optimized lateral expansion of the field of view in synchrotron radiation x-ray tomographic microscopy," *Journal of Synchrotron Radiation*, vol. 17, pp. 590–599, July 2010.

D. Haberthür, C. Hintermüller, J. C. Schittny, and M. Stampanoni, "Quality guided synchrotron radiation based x-ray tomographic microscopy of large lung samples." *Am. J. Respir. Crit. Care Med.*, vol. 179, no. 1, p. A1060, 2009. [Online]. Available: <http://ajrccm.atsjournals.org>

- S. A. McDonald, F. Marone, C. Hintermüller, G. Mikuljan, C. David, F. Pfeiffer, and M. Stampanoni, "Advanced phase contrast imaging using a grating interferometer," *Journal of Synchrotron Radiation*, vol. 16, pp. 562–572, 2009.
- F. Marone, C. Hintermüller, S. A. McDonald, R. Abela, G. Mikuljan, A. Isenegger, and M. Stampanoni, "X-ray tomographic microscopy at tomcat," *Journal of Physics, 9th International Conference on X-ray Microscopy*, vol. 186, 2008, in press.
- F. Marone, C. Hintermüller, S. McDonald, G. Abela, R. Mikuljan, A. Isenegger, and M. Stampanoni, "X-ray tomographic microscopy at tomcat," *SPIE*, 2008.
- S. A. McDonald, F. Marone, C. Hintermüller, P. Bensadoun, J.-C. and Aebischer, and M. Stampanoni, "High-throughput, high-resolution x-ray phase contrast tomography for high-sensitivity visualisation of soft tissue," *Journal of Physics, 9th International Conference on X-ray Microscopy*, vol. 186, 2008, in press.
- M. M. Mushred, S. A. Klapp, F. Enzmann, T. Szeder, T. Huthwelker, M. Stampanoni, F. Marone, C. Hintermüller, G. Bohrmann, W. F. Kuhs, and M. Kersten, "Natural gas hydrate investigations by synchrotron radiation x-ray cryo-tomographic microscopy (srxctm)," *Geophysical Research Letters*, vol. 35, 2008.
- B. Pfeifer, G. Fischer, F. Hanser, M. Seger, C. Hintermüller, R. Modre-Osprian, T. Trieb, and B. Tilg, "Atrial and ventricular myocardium extraction using model based techniques," *Methods of Information in Medicine*, vol. 45, pp. 19–26, 2006.
- B. Pfeifer, F. Hanser, C. Hintermüller, R. Modre-Osprian, G. Fischer, M. Seger, H. Mühlthaler, T. Trieb, M. Schocke, and B. Tilg, "Nice: Noninvasive imaging of cardiac electrophysiology," *Journal of Electronic Imaging*, 2006.
- G. Fischer, F. Hanser, B. Pfeifer, M. Seger, C. Hintermüller, R. Modre, B. Tilg, T. Trieb, T. Berger, F. X. Roithinger, and F. Hintringer, "A signal processing pipeline for noninvasive imaging of ventricular preexcitation," *Methods of Information in Medicine*, vol. 44, pp. 508–515, Apr. 2005.
- G. Fischer, B. Pfeifer, M. Seger, C. Hintermüller, F. Hanser, R. Modre, B. Tilg, T. Trieb, C. Kremser, F. X. Roithinger, and F. Hintringer, "Computational efficient noninvasive cardiac activation time imaging," *Methods of Information in Medicine*, vol. 44, no. 5, pp. 674 – 686, 2005.
- B. Pfeifer, F. Hanser, C. Hintermüller, R. Modre-Osprian, G. Fischer, M. Seger, H. Mühlthaler, T. Trieb, M. Schocke, and B. Tilg, "Cardiac modeling using active appearance models and morphological operators," *Journal of Electronic Imaging*, vol. 5744, pp. 279–289, 2005.
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