

# Mauricio Reyes

Date of Birth May 24, 1977

Place of Birth Chile

## Addresses

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## Education

- **PhD in Informatics (Medical Image Analysis)**  
Institut National de Recherche en Informatique et en Automatique (INRIA). 2005  
Epidaure Team. Sophia Antipolis, France  
Specialization on Image/Vision.
- **Electrical Engineer**  
Universidad de Santiago de Chile. Santiago, Chile 2000  
Specialization on Automatic Control. Graduated top of the class.
- **Bachelor in Engineering Sciences**  
Universidad de Santiago de Chile. Santiago, Chile 1999
- **Electromechanical Technician**  
Don Orione Industrial School. Santiago, Chile. Graduated top of the class. 1994

## Work History

- **Associate Professor**  
University of Bern, Institute for Surgical Technology and Biomechanics March 2014  
– Fach: Medical Image Analysis
- **Habilitation Privatdozent**  
University of Bern, Institute for Surgical Technology and Biomechanics Dec. 2012  
– Fach: Medical Image Analysis
- **Medical Image Analysis, Head Group**  
Institute for Surgical Technology and Biomechanics April 2008 - Present  
– Leading a team of 6 PhD students, 3 post-doc fellowships and 2 undergraduate students. Participation in EU/Swiss and industrial projects in the areas of brain cancer research, soft-tissue deformation modeling for cranio maxillo-facial surgery, image-guided orthopaedic implant design.

Institute for Surgical Technology and Biomechanics - Postdoc fellow 2006 - March 2008

- Medical image analysis, statistical shape modelling, soft tissue simulation, automatic volumetric meshing and smoothing for FEM analysis, implant design optimization, respiratory motion compensation in emission tomography, participation in preparation of EU projects.

- **Development Engineer**

CMET S.A.C.I 2002

- Development of an Internet based surveillance system.  
System based on DirectX8 SDK and Java technologies.

- **Electrical Engineer practice**

LAN Chile S.A January - February 2000

- Development of communication software to test aeronautics equipments.

- **Electromechanical Technician Internship**

LAN Chile S.A January-March 1995

- Performed maintenance and reparation of aeronautic equipments.

## Honors and Awards

- Award “*Ypsomed Innovation Award (20000CHF)*”  
Human-Machine Learning for Brain Lesion Image Analysis  
Bern, Switzerland 2017
- Award “*Second Prize Longitudinal Brain Tumor Segmentation Challenge. & BRATS 2016* ”  
Medical Image Computing and Computer Assisted Interventions  
Supervision of PhD student, Raphael Meier 2016
- Award “*First Prize Multiple Sclerosis Segmentation Challenge. & MSSEG 2016* ”  
Medical Image Computing and Computer Assisted Interventions  
In collaboration with Richard McKinley 2016
- Award “*Young Scientist Publication Impact Award*”  
Medical Image Computing and Computer Assisted Interventions  
Supervision of PhD student, Stefan Bauer 2016
- Award “*Second Prize Ischemic Stroke Lesion Segmentation Challenge. & ISLES 2016* ”  
Medical Image Computing and Computer Assisted Interventions  
In collaboration with Richard McKinley 2016
- Award “*Second Prize in Interactive Medical Image Computing*”  
“*Fast Correction Method for Abdominal Multi-Organ Segmentation Using 2D/3D Free Form Deformation and Posterior Shape Models*”.  
Medical Image Computing and Computer Assisted Interventions  
Supervision of PhD student, Waldo Valenzuela. 2015
- Award “*First Prize Ischemic Stroke Lesion Segmentation Challenge. & ISLES 2015* ”  
Medical Image Computing and Computer Assisted Interventions  
In collaboration with Richard McKinley 2015

- Award “*Best paper Siemens award Workshop on Medical Computer Vision*”  
“*Integrated spatio-temporal segmentation of longitudinal brain tumor imaging studies*”.  
Supervision of PhD student, Stefan Bauer 2013
- Award “*2nd Prize Brain Tumor Segmentation Challenge. & BRATS 2013* ”  
Medical Image Computing and Computer Assisted Interventions  
Supervision of PhD student, Raphael Meier 2013
- Award “*2nd Prize Brain Tumor Segmentation Challenge. & BRATS 2012* ”  
Medical Image Computing and Computer Assisted Interventions  
Supervision of PhD student, Stefan Bauer 2012
- Award “*Christof Seiler recipient of Miccai Young Scientist Award. & Miccai 2011* ”  
Medical Image Computing and Computer Assisted Interventions  
Supervision of PhD student, Christof Seiler 2011
- Honor “*Swiss National Science Foundation, NCCR Success Stories - 2009*”  
Representing the NCCR Co-Me project and the selected topic 2009  
“statistical shape modeling” - SNSF press release highlighting successful NCCR stories
- Award “*Best Technical Paper Presentation & Poster - CAOS 2008* ”  
Supervision of PhD students, Nina Kozic and Matthias Peterhans 2008
- Award “*Swiss National Science Foundation, Picture of the Month - October 2007*”  
SNSF Press release highlighting important research projects 2007
- Award “*Roberto Ovalle Aguirre*”  
Given by the Chilean Institute of Engineers for the best 2001 2001  
electrical engineering thesis of the Universidad de Santiago de Chile. Santiago, Chile.
- First prize in “*First National Contest of Technologic Innovation - 2001*”  
Title of work : Three-dimensional Reconstruction of a Human Embryo Hand Using  
Artificial Vision Techniques. Universidad de Santiago de Chile. Santiago, Chile.
- Award: *Best Student 1994 class*  
Don Orione Industrial School, Santiago, Chile 1994

## Fund Raising

- **Swiss National Science Foundation**

“*Stroke treatment goes personalized: Gaining added diagnostic yield by computer-assisted treatment selection*” 2017-2020  
Co-applicant (indicative budget: 105'000 CHF)

“*Longitudinal Brain Tumor Segmentation with Uncertainty Estimation using Fully-connected Conditional Random Field and Perturb-and-Maximum Posterior-Marginal Estimation*” Main applicant (178'000 CHF) 2017-2020

“*Image-guided Micro Surgery for Hearing Aid Implantation*” - Nano-Tera 2013-2017  
Co-applicant (indicative budget: 400'000 CHF)

<p><i>“Inclusion of Fabric in Patient-Specific Finite Element Analysis of the Proximal Femur”</i> Co-applicant (indicative budget: 150'000 CHF)</p>	2013-2016
<p><i>“Susceptibility Correction in Echo-Planar Image Using Image Registration”</i> Main applicant (indicative budget: 87'000 CHF)</p>	2011-2012
<p><i>“Bone Shape and Density Prediction from Demographic Anthropometric and Morphological Variables”</i> Main applicant (indicative budget: 73'000 CHF)</p>	2011-2012
<p>- National Center of Competence in Research on Computer Aided and Image Guided Interventions (NCCR CO-ME)</p>	
<p><i>“Virtual Skeleton Database”</i> Co-applicant (indicative budget: 500'000 CHF)</p>	2010-2013
<p><i>“Patient Specific Intervention Planning In Cranio-Maxillo Facial Surgery”</i> Co-applicant (indicative budget: 250'000 CHF)</p>	2010-2013
<p><i>“Computer-assistance in orthopaedic surgery”</i> Co-applicant (indicative budget: 500'000 CHF)</p>	2005-2009
<p>- International Short Research Visit Project <i>“Clinical Validation and Integration into the Italian Hospital of Buenos Aires of an Automated Morphometry Software”</i> Main applicant (indicative budget: 15'000 CHF)</p>	2010

- **Confederation's innovation promotion agency (CTI)**

CTI-Cranioform - Main-applicant 2014-2016  
*"Advanced Computer-aided Design System for Infant Cranial Shape Correction Helmet"*  
(indicative budget: CHF 360'000 )

CTI-Scanco - Co-applicant 2012-2015  
*"Fast estimation of Colles fracture load of the distal radius by non-linear finite element analysis based on high resolution peripheral computed tomography"*  
(indicative budget: CHF 150'000 )

CTI-Fumedica - Co-applicant 2012-2015  
*"Dynamic High-Resolution Microangiography"*  
(indicative budget: CHF 150'000 )

CTI-Crisalix - Main applicant 2011-2013  
*"3D Virtual Simulation for Facial and Breast Reduction Simulation Surgery"*  
(indicative budget: 500'000 CHF)

CTI-Crisalix - Main applicant 2009-2011  
*"3D Virtual Breast Augmentation Simulation"*  
(indicative budget: 500'000 CHF)

CTI-Stryker Osteosynthesis - Co-applicant 2006-2009  
*"Shape and biomechanical models for population specific design of anatomical peri-articular implants"*  
(indicative budget: 600'000 CHF)
- **EU Research Projects**

EU-FP7-ICT *"Computational Horizons In Cancer (CHIC): Developing Meta- and Hyper-Multiscale Models and Repositories for In Silico Oncology"* 2013-2017  
Co-applicant (indicative budget: 400'000 CHF)

EU-FP7-HEALTH *"High-resolution image-based computational inner ear modelling for surgical planning of cochlear implantation (HEAR-EU)"* 2012-2015  
Co-applicant (indicative budget: 300'000 CHF)

EU-FP7 *"Clinically oriented translational cancer multilevel modelling (ContraCancrum)"* Co-applicant (indicative budget: 300'000 CHF) 2008-2011
- **Foundations**

Krebsliga Schweiz (Swiss Cancer League) 2017-2020  
*"Multidimensional RespoNse Assessment in Glioma PatiEnts MANAGE"*  
Main applicant (indicative budget: 370'000 CHF)

Swiss Heart Foundation 2015-2018  
*"A machine learning approach towards automated tissue classification of the ischemic core and penumbra in acute ischemic stroke patients"*  
Co-applicant (indicative budget: 90'000 CHF)

Krebsliga Schweiz (Swiss Cancer League) “Medical Image Analysis for Brain Tumor Studies” Main applicant (indicative budget: 230'000 CHF)	2013-2015
Bernische Krebsliga (Bernese Cancer League) “Medical Image Analysis for Brain Tumor Studies” Main applicant (indicative budget: 30'00 CHF)	2013-2014
AO-Spine “Implications of Age-Related Muscle Loss (Sarcopenia) for Spinal Posture, Loading and Fracture Risk” Co-applicant (indicative budget: 180'000 CHF)	2013-2015
<b>• Third-party Industrial Funding</b>	
“Brain and Bone Medical Image Processing in MRI Imaging” Main applicant (indicative budget: 200'000 CHF)	2008-2011
“Image-guided and evidence based orthopaedic implant design” Main applicant (indicative budget: 200'000 CHF)	2008-2010
“MRI Spine Segmentation” Main applicant (indicative budget: 100'000 CHF)	2008-2009
“CMF Soft Tissue Simulation” Main applicant (indicative budget: 100'000 CHF)	2008-2009
“Bone Shape Prediction From Sparse Information” Main applicant (indicative budget: 100'000 CHF)	2008-2009

## Reviewer for Scientific Journals and Peer-Review Conferences

- Physics in Medicine and Biology (PMB)
- Medical Image Analysis (MedIA)
- IEEE Transactions on Medical Imaging (TMI)
- IEEE Transactions on Biomedical Engineering (TBME)
- Medical Image Computing and Computer Assisted Intervention (MICCAI)
- International Symposium on Biomedical Imaging: from Nano to Macro (ISBI)

## Conferences/Workshops Organized

- Program Committee of:  
MICCAI Brain Tumor Segmentation Challenge 2012-2017
- Program Committee of:  
MICCAI Ischemic Stroke Lesion Segmentation 2015-2017
- Program Committee of STIA:  
MICCAI Workshop on Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data 2010-2016
- Program Committee of CLIP:  
MICCAI Workshop on Clinical Image-based Procedures:  
From Planning to Intervention 2012-2016

- Program Committee of MeshMed  
MICCAI Workshop on Mesh Processing in Medical Image Analysis 2010 & 2011
- Co-Organizer of Summer School in Computational Oncology - EU-FP7  
Institute of Computer Sciences of the Foundation for  
Research and Technology, Crete, Greece June 2011
- Co-Organizer of Workshop in Statistical Shape Modeling  
10th Annual Meeting of the International Society for  
Computer Assisted Orthopaedic Surgery, Paris, France June 2010
- Co-Organizer of Workshop in Statistical Shape Modeling  
9th Annual Meeting of the International Society for  
Computer Assisted Orthopaedic Surgery, Boston, USA June 2009
- Co-Organizer of the first Summer School in Medical Imaging, Santiago, Chile  
Universidad de Santiago de Chile, Santiago, Chile 2004

### Invited Lectures and Teaching Experience

- Invited Talk 3rd International Workshop on Magnetic Resonance Imaging  
Mumbai, India February 2017  
Talk: *Machine Learning for Brain Lesion Analysis*
- Invited Talk Seminar Series Biomedical Image Analysis Univ. Basel  
Basel, Switzerland September 2016  
Talk: *Computational approaches to diseases of the central neural system*
- Invited Talk International Symposium in Biomedical Imaging  
Prague, Czech Republic April. 2016  
Talk: *From Muscle Quantification to Bone Fabric Modeling:  
Experiences in Quantitative Musculoskeletal Imaging*
- Invited Talk Organization for Human Brain Mapping  
Vienna, Austria Nov. 2015  
Talk: *Machine Learning in Brain Lesion Analysis*
- Invited Talk Summer School EU projects PICTURE & VPH-PRISM  
Multidisciplinary Advances in Personalised Breast Cancer Surgery  
Porto, Portugal July 2015  
Talk: *Statistical Shape Modelling for Soft-tissue Surgical Simulation*
- Invited Talk Methods in Biomechanics and Biomedical Engineering  
Soft-tissue Biomechanics and Engineering, Amsterdam Oct. 2014  
Talk: *Computational Anatomy for Population-based  
Design and Assessment of Medical Devices*
- Invited Talk MedTech Forum  
Luzern, Switzerland Sept. 2013  
Talk: *Medical Image Analysis: From Population Analysis to  
Patient-specific Treatment*

- Invited Talk at the Department of Computer Sciences  
 Danish Technical University June 2013  
 Copenhagen, Denmark  
 Talk: *Multimodal Brain Tumor Image Analysis*
- Invited Talk at the Department of Radiology Brigham  
 and Women's Hospital Harvard Medical School Sept. 2012  
 Harvard, Boston, USA.  
 Talk: *Brain Imaging and Computational Anatomy*
- Invited Talk at the Surgical Planning Laboratory Brigham  
 and Women's Hospital Harvard Medical School Sept. 2012  
 Harvard, Boston, USA.  
 Talk: *Image-Guided Soft Tissue Deformation for CMF Surgery*
- Invited Talk at the Department of Oral & Maxillofacial Surgery, UCSF Sept. 2012  
 UCSF, San Francisco, USA.  
 Talk: *Image-Guided Soft Tissue Deformation for CMF Surgery*
- Invited Lecturer at the Center for Biomedical Imaging June 2011  
 EPFL, Lausanne, Switzerland.  
 Talk: *Brain Image analysis at the ISTB*
- Invited Lecturer at the Dept. of Magnetic Resonance Oct. 2010  
 Spectroscopy and Methodology  
 DKF, Bern, Switzerland.  
 Talk: *Medical Image Analysis at the ISTB: Showcase of Research activities*
- Invited Lecturer at the Technology Institute of Buenos Aires, Argentina Sept. 2010  
 Talk: *Medical Image Analysis at the Institute for Surgical  
 Technology and Biomechanics*
- Lecturer of the MSc program in Biomedical Engineering 2007-present  
*Medical Image Analysis*  
 University of Bern/ETHZ, Switzerland.
- Invited Lecturer at Workshop in Statistical Shape Modeling June 2010  
 10th Annual Meeting of the International Society for  
 Computer Assisted Orthopaedic Surgery, Paris, France.  
 Talk: *Computational Anatomy for Bone Analysis  
 and Orthopedic Implant Design*
- Invited Lecturer at Workshop in Statistical Shape Modeling June 2009  
 9th Annual Meeting of the International Society for  
 Computer Assisted Orthopaedic Surgery, Boston, USA.  
 Talk: *Computational Anatomy for Bone Morphometry  
 and Orthopaedic Implant Design*
- Invited Lecturer at ESB-2008 July 2008  
 16th Congress European Society of Biomechanics  
 Talk: *Integration of Statistical Modeling in Biomechanical Simulation*



- Lecturer at the Summer School in Medical Imaging, Santiago, Chile  
*Nuclear medicine, image reconstruction and the breathing problem*  
Universidad de Santiago de Chile 2004
- Laboratory Instructor of Intelligent Control  
Electrical Engineering department, Universidad de Santiago de Chile 1999 - 2000
- Laboratory Instructor of Digital Control  
Electrical Engineering department, Universidad de Santiago de Chile 1999 - 2000
- Participated in the preparation of the teaching project:  
*“Construction and Application of Educational Video Programs for Electrical Engineering Laboratories”*  
Universidad de Santiago de Chile, Santiago, Chile 1999

### Supervised PhD Thesis

- Nina Kozic (2009) “Statistical shape space analysis based on level sets for optimization of orthopaedic implant design”.
- Hyungmin Kim (2011) “Computer-Assistance in Cranio-Maxillofacial Surgery: A Clinically-Driven Approach”.
- Thiago Oliveira dos Santos (2011) “A Soft Tissue Image Guidance System for Percutaneous Needle Interventions Based on Multimodal Images”.
- Serena Bonaretti (2012) “Statistical Finite Element Modeling: Application to Orthopaedic Implant Design”.
- Christof Seiler (2012) “Trees on Geometrical Deformations to Model the Statistical Variability of Organs in Medical Images”.
- Huanxiang Lu (2012) “Multi-modal Deformable Registration for Magnetic Resonance Image”.
- Habib Bou-Sleiman (2012) “A Computational Anatomy Approach to Orthopaedic Research”.
- Stefan Bauer (2013) “Medical Image Analysis and Image-based Modeling for Brain Tumor Studies”.
- Elham Taghizadeh (2016) “Statistical Shape Model of the Leg to Improve the Treatment of Patella Pathology in Total Knee Arthroplasty”.
- Waldo Valenzuela (2016) “Effective Human Machine Interfaces for Medical Image Analysis”.
- Carlos Correa Schokiche (2016) “MicroCT based kidney morphometry: A machine learning approach”.
- Vimal Chandran (2017) “Comprehensive and Effective Machine Learning based Computational Modelling of the Human Proximal Femur”.
- Raphael Meier (2017) “Towards Automatic Segmentation of Longitudinal Brain Tumor Imaging Data”.

## PhD Thesis Committee

- Ekaterina Mishina (2010) “Predictive Properties of Statistical Shape Models”. Computer Vision Laboratory, ETH Zurich.
- David Haberthür (2010) “High Resolution Tomographic Imaging of the Alveolar Region of the Mammalian Lung”. Institute of Anatomy, University of Bern.
- Oline Vinter Olesen (2012) “Markerless 3D Head Tracking for Motion Correction in High Resolution PET Brain Imaging”. Department of Informatics and Mathematical Modeling, Danish Technical University.
- Rasmus Ramsbol Jensen (2013) “Challenges in 3D scanning: Focusing on Ears and Multiple View Stereopsis”. Department of Informatics and Mathematical Modeling, Danish Technical University.
- Sebastien Barre. “X-ray Tomography: an Imaging Aid for Stereological Analysis of Lung Development”. Institute of Anatomy, University of Bern
- Tom Williamson (2015). “Sensor-guided Robotic Microsurgery”. Artificial Organ Center, University of Bern.
- Grzegorz Toporek (2015). “Image-guided Intraoperative Brachytherapy and Interventional Radiology”. Artificial Organ Center, University of Bern.
- Maryam Seif (2015) “Advanced Multi-modal MR Imaging Methods and Analysis Tools for Reliable Determination of Renal Function in Native and Transplanted Kidneys”. Magnetic Resonance Spectroscopy and Methodology, Department of Clinical Research, University of Bern.

## Other Professional Activities

- Master Thesis Coordinator  
Master of Sciences In Biomedical Engineering, Univ. Bern May 2011 - Present
- Co-Founder of Startup Company *Crisalix S.A*  
Virtual Aesthetics - Simulation of soft tissue deformations March 2008 - Present
- EU H2020 Project Reviewer  
Reviewer of EU Health2020 projects 2014 - Present
- Dept. of Health & Wellcome Trust Project Reviewer  
Reviewer of Health Innovation Challenge Fund  
Dept. of Health & Wellcome Trust 2015
- European Projects FP7  
(Seventh Framework Programme).  
- Osteoporotic Virtual Physiological Human (EU VPHOP)  
- Network of Excellence (EU NoE VPH)
- Member of the Computer Assisted Surgery Expert Group (CSEG)  
AO Foundation 2008

- Memberships
  - The Institute of Electrical and Electronics Engineers (IEEE)
  - The Swiss Society of Biomedical Engineering (SSBE)
  - The Swiss Cancer League

## Publications

### PH.D. THESIS

- [1] Reyes M. *Respiratory Motion Compensation in Emission Tomography*. PhD thesis, University of Nice, Sophia Antipolis, France, 2005.

### BOOK CHAPTERS

- [1] Crimi A., Menze B., Maier O., Reyes M., and Handels H. *Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries: First International Workshop, Brainles 2015, Held in Conjunction with MICCAI 2015, Munich, Germany, October 5, 2015, Revised Selected Papers*, volume 9556. Springer, 2016.
- [2] Reyes M., Shahim K., and Jürgens P. *Computer-Assisted Musculoskeletal Surgery: Thinking and Executing in 3D*, chapter Computational Image-Guided Technologies in Cranio-Maxillofacial Soft Tissue Planning and Simulation, pages 43–56. Springer International Publishing, Cham, 2016.
- [3] Bauer S., Wiest R., Slotboom J., and Reyes M. *Atlas-based Segmentation of Tumor-bearing Brain Images*, volume 12, pages 159–169. Springer Berlin / Heidelberg, m. a. hayat, ed. edition, 2014.
- [4] Bardyn T., Reyes M., Larrea X., and Buechler P. *Influence of Smoothing on Voxel-Based Mesh Accuracy in Micro-Finite Element*, chapter 10, pages 78–86. Springer Science+Business Media, LLC 2010, September 2009.
- [5] Seiler C., Büchler P., Nolte L.P., Paulsen R., and Reyes M. *Hierarchical Markov Random Fields Applied to Model Soft Tissue Deformations on Graphics Hardware*, chapter 9, pages 133–148. Springer, springer london edition, December 2008.
- [6] Kim H., Jürgens P., and Reyes M. *Patient-Specific Modeling in Tomorrow's Medicine*, volume 9 of *Studies in Mechanobiology, Tissue Engineering and Biomaterials*, chapter Soft-Tissue Simulation for Cranio-Maxillofacial Surgery: Clinical Needs and Technical Aspects, pages 413–440. Springer, 2012.

### JOURNAL ARTICLES

- [1] Meier R., Porz N., Knecht U., Loosli T., Schucht P., Beck J., Slotboom J., Wiest R., and Reyes M. Automatic estimation of extent of resection and residual tumor volume of patients with glioblastoma. *Journal of Neurosurgery*, pages 1–9, 2017.
- [2] Porz N., Habegger S., Meier R., Verma R.K., Jilch A., Fichtner J., Knecht U., Radina C., Schucht P., Jürgen B., Raabe A., Slotboom J., Reyes M., and Wiest R. Fully automated enhanced tumor compartmentalization: Man vs. machine reloaded. *PLoS ONE*, 11(11):1–16, 11 2016.
- [3] Maier O., Menze B., Wiest R., Handels H., and Reyes M. ISLES 2015 - A public evaluation benchmark for ischemic stroke lesion segmentation from multispectral MRI. *Medical Image Analysis*, 35:250–269, aug 2016.
- [4] McKinley R., Haeni L., Gralla J., El-Koussy M., Bauer S., Arnold M., Fischer U., Jung S., Mattmann K., Reyes M., and Wiest R. Fully automated stroke tissue estimation using random forest classifiers (faster). *Journal of Cerebral Blood Flow and Metabolism*, 2016.
- [5] Meier R., Knecht U., Loosli T., Bauer S., Slotboom J., Wiest R., and Reyes M. Clinical evaluation of a fully-automatic segmentation method for longitudinal brain tumor volumetry. *Nature Scientific Reports*, 6(23376), 2016.
- [6] Valenzuela W., Ferguson S., Ignasiak D., Diserens G., Haeni L., Wiest R., Vermathen P., Boesch C., and Reyes M. Fisico: Fast image segmentation correction. *PLoS ONE*, 11(5):1–17, 05 2016.

- [7] Seif M., Mani L., Lu H., Boesch C., Reyes M., Vogt B., and Vermathen P. Diffusion tensor imaging of the human kidney: Does image registration permit scanning without respiratory triggering? *J Magn Reson Imaging*, 44(2):327–334, Feb 2016.
- [8] Taghizadeh E., Reyes M., Zysset P., Latypova A., Terrier A., and Buchler P. Biomechanical role of bone anisotropy estimated on clinical ct scans by image registration. *Ann Biomed Eng*, Jan 2016.
- [9] Rios-Velazquez E., Meier R., Dunn W., Alexander B., Wiest R., Bauer S., Gutmann D., Reyes M., and Aerts H. Fully automatic gbm segmentation in the tcga-gbm dataset: Prognosis and correlation with vasari features. *Nature Scientific Reports*, 5(16822), November 2015.
- [10] Menze B., Reyes M., and Van Leemput K. The multimodal brain tumor image segmentation benchmark (brats). *IEEE Trans Med Imaging*, 34(10), Oct 2015.
- [11] Cerrolaza J.J., Reyes M., Summers R.M., González-Ballester M.A., and Linguraru M.G. Automatic multi-resolution shape modeling of multi-organ structures. *Medical Image Analysis*, 25(1):11–21, April 2015.
- [12] V. Chappuis, O. Engel, K. Shahim, M. Reyes, C. Katsaros, and D. Buser. Soft tissue alterations in esthetic postextraction sites: A 3-dimensional analysis. *Journal of Dental Research*, 94(9 suppl):187S–193S, 2015.
- [13] Seif M., Lu H., Boesch C., Reyes M., and Vermathen P. Image registration for triggered and non-triggered dti of the human kidney: Reduced variability of diffusion parameter estimation. *J Magn Reson Imaging*, 41(5):1228–1235, Jun 2014.
- [14] Porz N., Bauer S., Pica A., Schucht P., Beck J., Verma R.K., Slotboom J., Reyes M., and Wiest R. Multi-modal glioblastoma segmentation: Man versus machine. *PLoS ONE*, 9(5):e96873, May 2014.
- [15] Bonaretti S., Seiler C., Boichon C., Reyes M., and Buechler P. Image-based vs. mesh-based statistical appearance models of the human femur: Implications for finite element simulations. *Medical Engineering & Physics*, 36(12):1626 – 1635, 2014.
- [16] Bou-Sleiman H., Paul L., Nolte L.P., and Reyes M. Comparative evaluation of pelvic allograft selection methods. *Annals of Biomedical Engineering*, 41(5):931–938, May 2013.
- [17] Oliveira-Santos T., Baumberger C., Constantinescu M., Olariu R., Nolte L.P., Alaraibi S., and Reyes M. 3d face reconstruction from 2d pictures: First results of a web-based computer aided system for aesthetic procedures. *Annals of Biomedical Engineering*, 41(5):952–966, May 2013.
- [18] Lu H., Beisteiner R., Nolte L.P., and Reyes M. Hierarchical segmentation-assisted multimodal registration for mr brain images. *Computerized Medical Imaging and Graphics*, 37(3):234–244, April 2013.
- [19] Bauer S., Lu H., May C., Nolte L.P., Buechler P., and Reyes M. Integrated segmentation of brain tumor images for radiotherapy and neurosurgery. *International Journal of Imaging Systems and Technology*, 23(1):59–63, March 2013.
- [20] Bou Sleiman H., Iizuka T., Nolte L.P., and Reyes M. Population-based design of mandibular fixation plates with bone quality and morphology considerations. *Annals of Biomedical Engineering*, 41(2):377–384, February 2013.
- [21] Bauer S., Wiest R., Nolte L.P., and Reyes M. A survey of mri-based medical image analysis for brain tumor studies. *Physics in Medicine and Biology*, 58(13):R97, 2013.
- [22] Chappuis V., Engel O., Reyes M., Shahim K., Nolte L.P., and Buser D. Ridge alterations post-extraction in the esthetic zone a 3d analysis with cbct. *Journal of Dental Research*, 92(12 suppl):195S–201S, 2013.
- [23] Kim B.R., Oh K.M., Cevidanes L.H.S., Park J.E., Sim H.S., Seo S.K., Reyes M., Kim Y.J., and Park Y.H. Analysis of 3d soft tissue changes after 1-and 2-jaw orthognathic surgery in mandibular prognathism patients. *Journal of Oral and Maxillofacial Surgery*, 71(1):151–161, January 2013.

- [24] Seiler C., Pennec X., Nolte L.P., and Reyes M. Capturing the multiscale anatomical shape variability with polyaffine transformation trees. *Medical Image Analysis*, 16(7):1371–1384, October 2012.
- [25] Bauer S., Ritacco L.E., Boesch C., Nolte L.P., and Reyes M. Automatic scan planning for magnetic resonance imaging of the knee joint. *Annals of Biomedical Engineering*, 40(9):2033–2042, September 2012.
- [26] Blanc R., Seiler C., Székely G., Nolte L.P., and Reyes M. Statistical model based shape prediction from a combination of direct observations and various surrogates. application to orthopaedic research. *Medical Image Analysis*, 16(6):1156–1166, August 2012.
- [27] Seiler C., Gazdhar A., Reyes M., Benneker L.M., Geiser T., Siebenrock K.A., and Gantenbein-Ritter B. Time-lapse microscopy and classification of 2d human mesenchymal stem cells based on cell shape picks up myogenic from osteogenic and adipogenic differentiation. *Journal of Tissue Engineering and Regenerative Medicine*, page In Press, July 2012.
- [28] Ritacco L.E., Seiler C., Farfalli G.L., Nolte L., Reyes M., Muscolo D.L., and Tinao L.A. Validity of an automatic measure protocol in distal femur for allograft selection from a three-dimensional virtual bone bank system. *Cell Tissue Bank*, 1:1–8, Apr 2012.
- [29] de Heras Ciechomski P., Constantinescu M., Garcia J., Olariu R., Dindoyal I., Le Huu S., and Reyes M. Development and implementation of a web-enabled 3d consultation tool for breast augmentation surgery based on 3d-image reconstruction of 2d pictures. *Journal of Medical Internet Research*, 14(1):e21, 2012.
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