Mauricio Reyes

Date of Birth May 24, 1977
Place of Birth Chile

Addresses

Office:
ARTORG Center, University of Bern
Murtenstrasse 50
3007 Bern, Switzerland
Email: mauricio.reyes@unibe.ch
WWW: http://mauricioreyes.me

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, ARTORG Center for Biomed. Eng. Research April 2021 - Present
  - Fach: Medical Image Analysis

- **Head Data Science Team**
  Insel Data Science Center 2020

- **Head Healthcare Imaging A.I.**
  Insel Data Science Center January 2019

- **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 - 2018
  - Fach: Medical Image Analysis

  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 "*Winner Breaking Walls Switzerland* "
  Breaking Walls, Switzerland
  Supervision of PhD student, Amith Kamath 2024

- Award "*2nd Best Paper Award* "
  EMBC Conference 2023
  Supervision of PhD student, Amith Kamath 2023

- Award "*CAIM Young Researcher Award* "
  University of Bern
  Supervision of PhD student, Amith Kamath 2022

- Award "*Best PhD Thesis 2020 Graduate for School Cellular* "
  and Biomedical Sciences, University of Bern
  Supervision of PhD student, Fabian Balsiger 2020

- Award "*Best MSc Thesis Biomedical Engineering Master Program, Univ. Bern*"
  Fast and Accurate Human Brain Morphometry Estimation with Deep Learning
  Co-supervision of MSc student Michael Rebsamen 2017

- Award "*Second Prize Survival Prediction Challenge. & BRATS 2017* "
  Medical Image Computing and Computer Assisted Interventions
  Supervision of PhD student, Alain Jungo 2017

- 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

In the period 2008-2023, I have raised a total of CHF 10.6M for research funds.

- **Swiss National Science Foundation**

  "Interpretability-Guided Deep Learning for Medical Image Analysis: Applications to Medical Image Classification, Retrieval and Segmentation" 2023-2026
  Main applicant (indicative budget: 380'000 CHF)

"AI-multi-omics-based Prognostic Stratification of COVID-19 Patients in Acute and Chronic State:" 2020-2022
Co-applicant (indicative budget: 125'000 CHF)

"Predict and Monitor Epilepsy After a First Seizure: The Swiss-First Study - Synergia" 2019-2022
Co-applicant (indicative budget: 354'000 CHF)

"Stroke treatment goes personalized: Gaining added diagnostic yield by computer-assisted treatment selection" 2018-2020
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" 2017-2020
Main applicant (178'000 CHF)

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

"Inclusion of Fabric in Patient-Specific Finite Element Analysis of the Proximal Femur" 2013-2016
Co-applicant
(indicative budget: 150'000 CHF)

"Susceptibility Correction in Echo-Planar Image Using Image Registration" 2011-2012
Main applicant
(indicative budget: 87'000 CHF)

"Bone Shape and Density Prediction from Demographic Anthropometric and Morphological Variables" 2011-2012
Main applicant
(indicative budget: 73'000 CHF)

- National Center of Competence in Research on Computer Aided and Image Guided Interventions (NCCR CO-ME)

"Virtual Skeleton Database" 2010-2013
Co-applicant
(indicative budget: 500'000 CHF)

"Patient Specific Intervention Planning In Cranio-Maxillo Facial Surgery" 2010-2013
Co-applicant
(indicative budget: 250'000 CHF)

"Computer-assistance in orthopaedic surgery" 2005-2009
Co-applicant
(indicative budget: 500'000 CHF)

- International Short Research Visit Project
"Clinical Validation and Integration into the Italian Hospital of Buenos Aires of an Automated Morphometry Software" 2010
Main applicant
(indicative budget: 15'000 CHF)

- **Innosuisse promotion agency**

Innosuisse-Varian - Main-applicant 2019-2021
"Brain Tissue and Tumor Segmentation for Radiation Oncology - Planning using Advanced Deep Learning Technologies"
(indicative budget: CHF 645'000)

CTI-Intento - Main-applicant 2018-2019
"Radiomics Stroke TReatment Recovery prEdiction - Intento ReSToRE for upper limb stroke rehabilitation"
(indicative budget: CHF 840'000)

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 Ostheosynthesis - 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-COST *"A Comprehensive Network Against Brain Cancer - Net4Brain* 2023-2026
Co-applicant (indicative budget: 100'000 CHF)

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) 2021-2024
"Artificial Intelligence for Automated Quality Assurance in Radio Therapy for Glioblastoma Target Volume and Organs at Risk Delineation"
Main applicant (indicative budget: 360'000 CHF)

Lindenhof foundation 2020-2021
"Development and Evaluation of a novel AI-based Inverse Image Search Engine for Radiology"
Co-applicant (indicative budget: 100'000 CHF)

SITEM Insel Support Funds 2020-2021
"Impact on the Robustness of 7T vs. 3T MRI based Fully Automated Target Volume Definition for Radiation Therapy Planning in Patients with Glioblastoma"
Co-applicant (indicative budget: 33'000 CHF)

Swiss Personalized Health Network (SPHN) 2019-2021
"Radiomics for comprehensive patient and disease phenotyping in personalized health: IMAGINE"
Main applicant (indicative budget: 190'000 CHF)

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

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

Swiss Foundation for Research on Muscle Diseases
"Automated volumetry and quantitative MRI to diagnose peripheral nerve lesions - translational proposal for a new clinical diagnostic imaging tool" 2015-2018
Co-applicant (indicative budget: 140'000 CHF)

Krebsliga Schweiz (Swiss Cancer League) 2013-2015
"Medical Image Analysis for Brain Tumor Studies"
Main applicant (indicative budget: 230'000 CHF)

Bernische Krebsliga (Bernese Cancer League) 2013-2014
"Medical Image Analysis for Brain Tumor Studies"
Main applicant (indicative budget: 30'00 CHF)

AO-Spine *"Implications of Age-Related Muscle Loss (Sarcopenia) for Spinal Posture, Loading and Fracture Risk"* 2013-2015
Co-applicant (indicative budget: 180'000 CHF)

- **Third-party Industrial Funding**
"Multimodal Narrative XAI" Main applicant 2024
(indicative budget: 250'000 CHF)
"Automated Brain Tumor Segmentation from Multisequence MRI" Main applicant 2017
(indicative budget: 60'000 CHF)
"Brain and Bone Medical Image Processing in MRI Imaging" Main applicant 2008-2011
(indicative budget: 200'000 CHF)
"Image-guided and evidence based orthopaedic implant design" Main applicant 2008-2010
(indicative budget: 200'000 CHF)
"MRI Spine Segmentation" Main applicant 2008-2009
(indicative budget: 100'000 CHF)
"CMF Soft Tissue Simulation" Main applicant 2008-2009
(indicative budget: 100'000 CHF)
"Bone Shape Prediction From Sparse Information" Main applicant 2008-2009
(indicative budget: 100'000 CHF)

Reviewer for Scientific Journals and Peer-Review Conferences

- Physics in Medicine and Biology (PMB)

- Frontiers in Neurology
- 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

- Satellite Events Chair
  International Conference on Medical Image Computing and Computer Aided Intervention (MICCAI) — 2020
- Program Committee of iMIMIC:
  MICCAI Interpretability of Machine Intelligence in Medical Image Computing — 2018-2019, 2021-2023
- Program Committee of BRATS:
  MICCAI Brain Tumor Segmentation Challenge — 2012-2018
- Program Committee of ISLES:
  MICCAI Ischemic Stroke Lesion Segmentation — 2015-2019, 2022file
- 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

- Invited Talk Swiss Society of Radiation Oncology, Switzerland
  Bern, Switzerland — August 2023
  Talk: *What is Knocking at the Door of Clinics?*
- Invited Talk Explainable Machine Learning Workshop, Tubingen, Germany
  Tubingen, Germany — March 2023
  Talk: *Interpretability of Deep Learning Medical Image Computing Technologies: Insights, Challenges and Opportunities*

- Invited Talk British Society of Radiology, London, U.K
  Bern, Switzerland February 2023
  Talk: *Interpretability of Deep Learning Technologies for Neuroradiology: Insights, Challenges and Opportunities*

- Invited Talk Clinical Neurosciences Bern Network, Bern, Switzerland
  Bern, Switzerland September 2022
  Talk: *A.I in Radiation Oncology*

- Invited Talk Recent Advances in Medical Image Analysis, Univ. London, UK (zoom)
  London, United Kingdom June 2022
  Talk: *On accuracy, robustness and explainability of neuro-oncology AI solutions*

- Invited Talk Brain Lesion Workshop at BRATS 2021, MICCAI 2021, Strasbourg, France (zoom)
  Strasbourg, France September 2021
  Talk: *On accuracy, robustness and explainability of neuro-oncology AI solutions*

- Invited Talk Case Comprehensive Cancer Center, Case Western Reserve University, USA (zoom)
  Cleveland, USA December 2020
  Talk: *On accuracy, robustness and explainability of neuro-oncology AI solutions*

- Invited Talk Pattern Recognition Lab, Friedrich-Alexander-Universitt FAU, Germany (zoom)
  Erlangen-Nuernberg, Germany November 2020
  Talk: *Medical image analysis in the era of deep learning: from performance to challenging the alchemist within*

- Invited Talk VISUM Summer School, Porto, Portugal (zoom)
  Bern, Switzerland July 2020
  Talk: *Interpretability Methodologies for Machine Learning in Medical Imaging*

- Invited Talk RadioOncology Center, Riviera-Chablais Hospital, Rennaz, Switzerland
  Rennaz, Switzerland May 2020
  Talk: *AI technologies in Neuroradiology and Radiation Oncology: Challenges and Opportunities*

- Invited Talk University of Applied Sciences, Valis, Switzerland
  Valis, Switzerland April 2020
  Talk: *AI technologies in Neuroradiology and Radiation Oncology: Challenges and Opportunities*

- Invited Talk Zuppinger Symposium, University Hospital Bern, Switzerland
  Bern, Switzerland January 2020
  Talk: *Quality Control Aspects in Imaging AI*

- Invited Talk VISUM Summer School, Porto, Portugal
  Porto, Portugal July 2019
  Talk: *Interpretability Methodologies for Machine Learning in Medical Imaging*

- Invited Talk Swiss, German and Austrian Biomed. Eng. Societies Meeting
  Frankfurt, Germany September 2019
  Talk: *Healthcare Imaging A.I: Challenges and Opportunities*

- Invited Talk Medical Imaging Workshop, University of Concepcion, Chile
  Concepion, Chile June 2019
  Talk: *Artificial Intelligence in medicine a view from Switzerland*

- Invited Talk Institute for Social and Preventive Medicine, University of Bern
  Bern, Switzerland June 2019
  Talk: *Challenges and Opportunities of A.I. in Medical Imaging: What is the IDSC doing about it?*

- Invited Talk Microscopy Imaging Center, University of Bern
  Bern, Switzerland — March 2019
  Talk: *Healthcare Imaging A.I. at the Insel Data Science: Experiences from the past and challenges for the future*

- Invited Talk Swiss Society of Radiobiology and Medical Physics
  Lausanne, Switzerland — November 2018
  Talk: *Deep Learning for Medical Image Physics: Where are we? Challenges and Opportunities*

- Invited Talk Computational Precision Medicine MICCAI Workshop
  Granada, Spain — September 2018
  Talk: *On accuracy, robustness and scalable data curation for precision medicine in medical image computing*

- Invited Talk Seminar series Varian Medical Systems
  Baden, Switzerland — January 2018
  Talk: *Human-Machine Intelligence in Medical Image Analysis*

- Invited Talk Seminar series Radiation Oncology Department
  Bern, Switzerland — October 2017
  Talk: *Human-Machine Intelligence in Medical Image Analysis*

- 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
  UCSF, San Francisco, USA. — Sept. 2012
  Talk: *Image-Guided Soft Tissue Deformation for CMF Surgery*

- Invited Lecturer at the Center for Biomedical Imaging
  EPFL, Lausanne, Switzerland. — June 2011
  Talk: *Brain Image analysis at the ISTB*

- Invited Lecturer at the Dept. of Magnetic Resonance Spectroscopy and Methodology
  DKF, Bern, Switzerland. — Oct. 2010
  Talk: *Medical Image Analysis at the ISTB: Showcase of Research activities*

- Invited Lecturer at the Technology Institute of Buenos Aires, Argentina
  Talk: *Medical Image Analysis at the Institute for Surgical Technology and Biomechanics* — Sept. 2010

- Invited Lecturer at Workshop in Statistical Shape Modeling
  10th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery, Paris, France. — June 2010
  Talk: *Computational Anatomy for Bone Analysis and Orthopedic Implant Design*

- Invited Lecturer at Workshop in Statistical Shape Modeling
  9th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery, Boston, USA. — June 2009
  Talk: *Computational Anatomy for Bone Morphometry and Orthopaedic Implant Design*

- Invited Lecturer at ESB-2008
  16th Congress European Society of Biomechanics — July 2008
  Talk: *Integration of Statistical Modeling in Biomechanical Simulation*

Teaching Experience

- Lecturer of the MSc program in Biomedical Engineering
  Medical Image Analysis
  ETHZ, Switzerland. — 2007-present

- Lecturer of the MSc program in Biomedical Engineering
  Medical Image Analysis
  University of Bern, Switzerland. — 2007-present

- Lecturer of the MSc program in Biomedical Engineering
  Medical Image Analysis Laboratory
  University of Bern, Switzerland. — 2014-present

- 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".
- Ping Lu (2017) "Advanced Medical Image Analysis of the Human Facial Nerve based on Machine Learning Technologies".
- Alain Jungo (2020) "Applications and Insights of Uncertainty Estimates in Automated Brain Tumor Segmentation".
- Fabian Balsiger (2020) "Quantitative Magnetic Resonance Imaging to Monitor and Diagnose Neuromuscular Diseases".
- Yannick Suter (2021) "Advanced Machine Learning Technologies for Robust Longitudinal Radiomics and Response Assessment in Glioblastoma Multiforme".
- Suhang You (2021) "Segmentation and Quality Control, Understanding Confounders Leading to Failure Modes in Medical Image Analysis with Deep Learning".

- Robert Poel You (2021) "Radiotherapy Oriented Quality Control for Deep Learning Based Fully Automated Segmentation of Intracranial Targets and Organs at Risk".
- Elias Ruefenacht You (2021) "Data-centric and Clinically-relevant AI-based Segmentation of Intracranial Tumors and Organs-at-Risk for Radiotherapy".

PhD Thesis Committee

- Ekaterina Mishina (2010) "Predictive Properties of Statistical Shape Models". Computer Vision Laboratory, ETH Zrich.
- 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 lntraoperative Brachytherapy and lnterventional 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.
- Thomas Demarcy (2017) "Segmentation and Study of Anatomical Variability of the Cochlea form Medical Images". Asclepios Research Team, Sophia Antipolis, Inria, France.
- Zihao Wang (2021) "Deep Generative Learning for Medical Data Processing, Analysis, and Modeling". Epione Research Team, Sophia Antipolis, Inria, France.
- Mara Graziani (2021) "Human-Centric Interpretability of Deep Learning for Medical Imaging". University of Applied Sciences Western Switzerland, Sierre, Switzerland.
- Josefine Vilsboll Sundgaard (2022) "Deep learning methods for pediatric middle ear diagnostics". Danish Technical University, Copenhagen, Denmark.
- Paula Lopes Dias (2024) "Deep Learning Methods in 3D Computed Tomography Images for Implantable Devices". Danish Technical University, Copenhagen, Denmark.

Other Professional Activities

- Editorial Board Member - Medical Image Analysis Journal
  Medical Image Analysis Journal (MedIA) 2024 - Present
- Executive Board Member Center for A.I. in Medicine
  Center for A.I. in Medicine Univ. Bern February 2020 - Present
- Initiator of Diversity in AI for Medicine (DAIM) initiative
  Diversity for A.I. in Medicine Univ. Bern January 2022 - Present

- Co-Founder of Startup Company *RadVoyager S.A*
  A.I assisted Radiology — March 2020 - 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 & Welcome Trust Project Reviewer
  Reviewer of Health Innovation Challenge Fund
  Dept. of Health & Welcome 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., Bakas S., Kuijf H., Keyvan F., Reyes M., and van Walsum T. *Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries: 4th International Workshop, BrainLes 2018, Held in Conjunction with MICCAI 2018, Granada, Spain, September 16, 2018, Revised Selected Papers.* Springer, 2019.

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