Raluca-Maria Sandu

I am currently finishing my PhD Degree in Biomedical Engineering, previously having graduated with an MSc in Biomedical Engineering and a BSc in Control Engineering and Applied Informatics. My research is at the interface of computer-assisted systems and focuses on developing solutions that can improve the diagnosis and treatment in healthcare using machine learning, data mining, statistics, and robotics.

EDUCATION

University of Bern, ARTORG Center for Biomedical Engineering
Ph.D. in Biomedical Engineering   MAY 2017 – JAN 2021
My project was part of a European Innovative Training Network (HiperNav) funded through a Marie Skłodowska-Curie grant.
Thesis: "*Quantitative assessment of ablation treatments for liver tumours – image-based efficacy analysis and predictive modelling*".

RWTH Aachen University, Faculty of Medicine
MSc in Biomedical Engineering   OCT 2014 – MAR 2017
Thesis: *"Image Segmentation and Semantic Description: Tools and Analytics"* conducted at Philips Research Eindhoven, The Netherlands
Thesis Project Grade: 1.0/1.0
Average Grade Courses: 2.1/1.0

POLITEHNICA University of Bucharest
BSc in Control Engineering and Applied Informatics OCT 2010 – JUL 2014
Thesis: "*Volumetric Capnography Respiratory Signals for Spontaneously Breathing Subjects*" conducted at Philips Research Netherlands
Thesis Project Grade: 9.80/10
Average Grade Courses: 8.32/10

WORK EXPERIENCE

Philips Research Eindhoven, Personal Care and Wellness Department
JULY 2016 – MARCH 2017 (9 months)
Designed and developed a web-based application for 2D image annotation.
Built image processing and machine learning algorithms for classification of anatomical skin surface structures (semantic segmentation).

Philips Research Eindhoven, Personal Care and Wellness Department
Research & Development Intern APRIL 2016 – JUNE 2016 (3 months)
Applied image processing to extract physiological features that measure the effect of a specific diet on skin.

Joint Research Centre for Computational Biomedicine, RWTH Aachen
Student Research Assistant (HiWi) NOV 2014 – JULY 2015 (9 months)
Analysed interactions between cancer cell lines.

Philips Research Eindhoven, Personal Health Department
Research & Development Intern JULY 2013 – OCT 2013 (4 months)
Implemented signal processing for respiratory signals feature extraction.

Philips Research Eindhoven, Personal Health Department
Research & Development Intern JULY 2012 – SEP 2012 (9 months)
Implemented data mining techniques for chronic heart failure patients.

CONTACT

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Website: raluca-san.github.io

LinkedIn: linkedin.com/in/rmsandu

PROGRAMMING SKILLS

- ✓ Data Analytics
- ✓ Machine Learning
- ✓ Signal & Image Processing
- ✓ Statistical Analysis
- ✓ Python
- ✓ RStudio
- ✓ MATLAB
- ✓ Git (GitHub, Bitbucket, GitLab)
- ✓ Bash
- ✓ HTML, CSS, JavaScript, jQuery
- ✓ SQL
- ✓ C/C++/C#

OTHER SKILLS

- ✓ Graphic Design (InkScape, Gimp)
- ✓ Public Speaking
- ✓ Presentation Design
- ✓ Scientific Writing

LANGUAGES

English: Fluent (CAE C1 – Grade A)

German: Intermediate (B2)

French: Intermediate (B1)

RESEARCH OUTPUT

Peer-Reviewed Journal Publications

- ✓ Frontiers in Oncology, Cancer Imaging and Image-directed Interventions
  OCT 2020 (submitted)
  "*Volumetric Quantitative Ablation Margins for Assessment of Ablation Completeness in Thermal Ablation of Liver Tumours*" (**R.M. Sandu**, I. Paolucci, S.J. Ruiter, R. Sznitman, S. Weber, P. Tinguely)
- ✓ IEEE Open Journal of Engineering in Medicine and Biology
  FEB 2020 (published)
  "*Ultrasound based planning and navigation for non-anatomical liver resections — an ex-vivo study.*" (I. Paolucci, **R.M. Sandu**, L. Sahli, G.A. Prevost, D. Candinas, A. Lachenmayer)

Book Chapter

- ✓ Liver Pathology, Intechopen
  OCT 2019
  "*Stereotactic Image-Guidance for Ablation of Malignant Liver Tumors.*" (I. Paolucci, **R.M. Sandu**, P. Tinguely**,** S. Weber, A. Lachenmayer)

Conference Publications with Public Talks

- ✓ IEEE Engineering in Medicine and Biology Society (EMBS) International Student Conference
  NOV 2019, Magdeburg (Germany)
  "*Quantitative Volumetric Assessment of CT-guided Ablation Treatments for Colorectal Liver*" (**R.M. Sandu**, I. Paolucci, J. Freedman, P. Tinguely, S. Weber)
- ✓ 31st Conference of the international Society for Medical Innovation and Technology (iSMIT),
  OCT 2019, Heilbronn (Germany)
  "*Quantitative Volumetric Assessment of Percutaneous Ablation Treatments for Colorectal Liver Metastases.*" (**R.M. Sandu**, I. Paolucci, J. Freedman, P. Tinguely, S. Weber)
- ✓ CURAC - 18th Annual Meeting of the German Society for Computer- and Robot-Assisted Surgery
  SEP 2019, Reutligen (Germany)
  "*Quantitative volumetric assessment of percutaneous image-guided microwave ablations for colorectal liver metastases*" (**R.M. Sandu**, I. Paolucci, J. Freedman, P. Tinguely, S. Weber)
- ✓ CURAC - 17th Annual Meeting of the German Society for Computer- and Robot-Assisted Surgery
  SEP 2018, Leipzig (Germany)
  "*A Framework For The Quantitative Assessment of Image-guided Percutaneous Ablation of Hepatic Lesions*" (R. Hrabuska, **R.M. Sandu,** I. Paolucci, S. Weber)

Public Speaking/Conference Talks

- ✓ Maurice E. Müller Memorial Event at Inselspital Bern
  MAR 2018, Bern (Switzerland)
  "*Minimally Invasive Treatment of Liver Tumours*" (Invited Speaker)
- ✓ ECALSS Congress (European Computer Assisted Liver Surgery Society) Bern, Switzerland
  OCT 2019, Bern (Switzerland)
  "*Quantitative ablation – Methodology and Results from the MAVERRIC Study*" (Conference Talk)

HOBBIES

- ✓ Volunteering
  Vice-President Local Committee IAESTE Bern, Switzerland (https://www.iaeste.ch/en/)
- ✓ Being in nature
  Hiking, Skiing, Snowboarding, Surfing
- ✓ Painting (acrylic and watercolours)