Raluca-Maria Sandu

I am currently finishing my PhD Degree in Biomedical Engineering, previously having graduated with an MSc in the same field and a BSc in Control Engineering and Applied Informatics. My research interests are machine learning, computer vision, statistics, and robotics.

EDUCATION

University of Bern, ARTORG Center for Biomedical Engineering
PhD 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, NL
Thesis Project Grade: 100%
GPA: 83%

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 Eindhoven, NL
Thesis Project Grade: 98%
GPA: 83% (Ranked 46 out 202 graduates)

WORK EXPERIENCE

Philips Research Eindhoven, Personal Care and Wellness Department
Research & Development Graduate Student JUL 2016 – MAR 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 APR 2016 – JUN 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 – JUL 2015 (9 months)
Analysed interactions between cancer cell lines.
Philips Research Eindhoven, Personal Health Department
Research & Development Intern JUL 2013 – OCT 2013 (4 months)
Used signal processing methods for respiratory signals feature extraction.
Philips Research Eindhoven, Personal Health Department
Research & Development Intern JUL 2012 – SEP 2012 (9 months)
Implemented data mining techniques for chronic heart failure patients.

CONTACT

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GitHub: github.com/raluca-san
LinkedIn: linkedin.com/in/rmsandu

TECHNICAL SKILLS

- ✓ Data Science
- ✓ Machine Learning
- ✓ Signal & Image Processing
- ✓ Statistical Analysis
- ✓ Python (scikit-learn, numpy)
- ✓ RStudio
- ✓ MATLAB
- ✓ Git (GitHub, Bitbucket)
- ✓ Bash, Linux
- ✓ HTML, CSS, JavaScript,
- ✓ SQL
- ✓ C/C++/C#

OTHER SKILLS

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

LANGUAGES

English: Fluent (C1)
German: Intermediate (B2)
French: Intermediate (B1)

RESEARCH OUTPUT

Peer-Reviewed Journal Publications

- ✓ Frontiers in Oncology, Cancer Imaging and Image-directed Interventions, OCT 2020 (accepted)
  "*Volumetric Quantitative Ablation Margins for Assessment of Ablation Completeness in Thermal Ablation of Liver Tumours*" (**R.M. Sandu**, I. Paolucci, R. Sznitman, S. Weber, P. Tinguely)
- ✓ IEEE Open Journal of Engineering in Medicine and Biology, FEB 2020
  "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

- ✓ 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
  "Minimally Invasive Treatment of Liver Tumours" (Invited Speaker)
- ✓ ECALSS Congress (European Computer Assisted Liver Surgery Society) OCT 2019
  "*Quantitative ablation – Methodology and Results from the MAVERRIC Study*" (Conference Talk)

CERTIFICATES

- ✓ Good Clinical Practice (GCP) Certificate, CTU Bern
  Clinical Investigators I: Basic GCP & clinical research training Course, FEB 2019
- ✓ Zertifikat Niveau B1, Sprachenzentrum der RWTH Aachen, SEP 2015, score 95%
  German Language classes undertaken at the University of Bern (2017-2019) - B2.2 level.
- ✓ Erasmus Mobility Placement Grant for Internship at Philips Research Netherlands, JUN 2012
- ✓ Artificial Intelligence Course in partnership with Stanford School of Engineering, DEC 2011
  Completed in the top 25% of the class with a score of 95.1%.
- ✓ Certificate in Advanced English CAE, University of Cambridge ESOL, JUN 2009, grade A
- ✓ Diplôme d'études en langue française DELF B1, FEB 2009, score 80%

HOBBIES

- ✓ Volunteering
  Vice-President Local Committee IAESTE Bern, Switzerland, https://www.iaeste.ch/en/
- ✓ Hiking, Skiing, Snowboarding, Surfing