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RUDY RIZZO

Data Scientist, Magnetic Resonance Scientist, Deep Learning Engineer

Education

2023 Ph.D. in Biomedical Engineering
University & University Hospital Bern
Bern, Switzerland

2019 M.Sc. in Biomedical Engineering
University of Padova
Padova, Italy
GPA 4.00/4.00
summa cum laude

2016 B.Sc. in Information Engineering
University of Padova
Padova, Italy
GPA 3.46/4.00

2013 Technical High School Institute
Higher Technical Institute A. Palladio
Treviso, Italy
GPA 4.00/4.00

Soft Skills

- Project management ★★☆
- Decision making ★★☆
- Problem solving ★★★
- Logical thinking ★★☆
- Creativity ★★★
- Adaptability ★★★
- Intuition ★★★
- Teamwork ★★☆

Technical Skills

- AI/Deep Learning ★★☆
- Data Analysis ★★★
- Magnetic Resonance (MR) ★★★

- Phyton ★★★
- MATLAB ★★★
- Java ★☆☆
- C/C++ ★☆☆
- Latex ★★☆
- Office Suite ★★☆
- Adobe Suite ★☆☆

and where there is no knowledge,
there is dedication to learn

Experience

Researcher

May 2019 – May 2023 (expected)
MR Methodology Group (MRM) – *Prof. R. Kreis*
Dept. of Interventional Neuroradiology (DIN)
University and University Hospital Bern
Translational Imaging Center (TIC), sitem-insel
Bern, Switzerland

- Design of Magnetic Resonance (MR) sequences and protocols
- Testing and debugging with first person interaction @ MR scanner
- Implementation and analysis of Deep Learning algorithms
- Mathematical modelling and assessment of estimation algorithms

Projects

- Multi-parametric single-voxel spectroscopy and spectroscopic imaging (MRS-MRSI) for simultaneous fast and accurate quantification of brain metabolite concentrations and T_2s
- Robustness and reliability of Deep Learning approaches to quantify metabolic profile in MR Spectroscopy

Visiting Research Fellow

Apr 2022 – Jun 2023
Biomedical MR Group (BioMR) – *Prof. T. Scheenen & A. Heerschap*
Radboud University Medical Center
Nijmegen, The Netherlands

- Collaboration with partner institution on project extensions
- Experience in clinical context: ethic proposals, interaction with clinical personnel and working with pathological cases/data

Projects

- Extension to multi-parametric MRSI to the prostate
- Diffusion-Weighted MR Spectroscopy of the prostate: comparison of healthy and prostate cancer tissue

Researcher

Aug 2018 – Mar 2019
Electro-Medical Fusion Lab – *Prof. Jong-Mo Seo & A. Ruggeri*
Dept. of Electrical and Computer Engineering
Seoul National University
Seoul, South Korea

- Design of real-time models and software tools in vision prosthetic.

Project

- Real-time simulation of phosphenized images integrating the application of fixational eye movements to improve image recognition and restore eye mobility in vision impaired subjects

Languages

Italian	mother tongue
English	C2
German	B1
Korean	A1

Interests

- Machine Learning in medical field
- Estimation problems and modelling: bias, and uncertainties
- MR hardware and software development
- Neuroimaging
- Wearable devices
- Electromedical apps and devices

Volunteering

Erasmus Student Network volunteer (ESNer), section of Bern

- former member, event manager and president
- currently advisory council

Hobbies

- Dungeons & Dragons
- Boardgames
- Hiking and Via Ferrata
- Running
- Travelling
- Cooking

References

Prof. Roland Kreis
Prof. Tom Scheenen
Prof. Arend Heerschap
Prof. Mauricio Reyes
Prof. Jong-Mo Seo
Prof. Alfredo Ruggeri
Prof. Elisabetta Sieni

can be provided upon request

Researcher

Feb 2016 – Sep 2016
Dept. of Industrial Engineering – *Prof. E. Sieni*
University of Padova
Padova, Italy

- Cooperation with senior researchers to simulate 3D-finite-element current fluxes and related magnetic fields
- Development of experimental setup and investigational concepts deploying medical devices and in-vivo tests on plant models

Project

- Analysis of electrode inclination on skin electroporation: model scaling, applicator size and voltage changes over time

International studies

Feb 2018 – Jul 2018
ERASMUS+ @ Technische Universität Graz
Graz, Austria

- Collaboration with international fellows on research and teaching projects

Courses/Interests

- Brain Computer Interfaces, brain computation and neuron modelling, neuro-engineering, rehabilitation, and prosthetic

Career Objective

Seeking for a challenging and dynamic position in the field of new technologies, biomedical imaging or devices, or biotechnologies. As a young professional I'm looking for a positive environment, where is possible to express my dedication and attitude to improve my knowledge and my skills.

Selected Publications

- Reliability of quantification estimates in MR Spectroscopy: CNNs vs. traditional model fitting, *proceedings of MICCAI*:**2249**, 2022
- Multi-Parametric Single-Shot Magnetic Resonance Spectroscopy for Fast Metabolite Specific Concentration and T_2 determination, *proceedings of ISMRM*: **0311**, 2022
- Denoising of MR spectra by deep learning: miracle or mirage? *proceedings of ISMRM*: **2541**, 2022
- Non-parallelism of needles in electroporation: 3D computational model and experimental analysis, *COMPEL* **38**(1):348-361, 2018
- Modeling fixational eye movement for the vision prosthesis, *proceedings of the 41st annual international conference of IEEE EMBC*:5260-5263, 2019

Certifications

- 12.2021: Start-Up training – Business Concept*, Innosuisse*, Bern, Switzerland
- 09.2019: IDEA Sequence Programming – VE11*, Siemens Healthineers*, Erlangen, Germany

Awards

ERASMUS +study (6months), ERASMUS +mundus (9months), Marie-Curie ITN scholarship (3 years)