
GESZTI GYULA PETER

Physicist / Developer

CONTACT DETAILS

gesztigyulapeter@gmail.com

Mobile: +36 30 375 5210

<https://github.com/JPGeszt>



Personal Statement

I am a physicist with a background in theoretical physics and a passion for the field of medical physics. During my undergraduate studies, I had the opportunity to work on a fascinating project focused on inverse optimization algorithms used in radiotherapy treatment planning. This experience allowed me to gain practical insights into the application of physics in healthcare and further sparked my interest in the field. For my postgraduate project, I worked on ASL-MRI sequence optimization and automated image processing.

In my previous job placement, I had the opportunity to engage in software development tasks that required expertise in the Java programming language. I thoroughly enjoyed this aspect of my work, as it allowed me to combine my physics knowledge with programming skills to create efficient and effective solutions. Furthermore, my recent postgraduate studies have equipped me with a strong foundation in Python development, expanding my repertoire of programming languages.

Work Experience

MRI Physicist

MEDISO LTD. — 2 YEARS & 9 MONTHS



2023
APRIL

:

2020
JULY

In my role as an MRI physicist, I did R&D for the MRI modality with a team of engineers and physicists. I aided the software development of the nanoScan MRI and PET/MRI lineup. My responsibilities included sequence development based on user requirements. I also provided protocols with the developed imaging sequences for the users, and gathered experience with protocol optimization and sequence testing on the hardware. I also worked on projects where post-processing pipelines were developed and implemented in the software. My main coding languages were Java and MATLAB for the given projects.

Education

2023 SEPTEMBER : 2022 SEPTEMBER	Mathematics Expert in Data Analytics and Machine Learning ELTE — EÖTVÖS LORÁND RESEARCH UNIVERSITY POSTGRADUATE SPECIALIZATION PROGRAM 
	<p>The focus of the training is machine learning, its techniques and solutions from the fields of statistics and deep learning, as well as data science and big data. My thesis will be written on Natural Language Processing Models.</p>
2019 OCTOBER : 2018 SEPTEMBER	Medical Engineering & Physics MSc KCL — KING'S COLLEGE LONDON 
	<p>The course is accredited by IPPEM. I completed the courses of the Medical Physics stream to become a medical physicist. My thesis project was on the application of ASL-MRI in the early detection of dementia, conducted in the Neuroradiology Department of King's College Hospital. This project involved the creation of a dedicated MATLAB based software for image processing and visualization as well as the utilization of python tools for further interactive data visualization.</p>
2018 SEPTEMBER : 2015 SEPTEMBER	Physics BSc ELTE — EÖTVÖS LORÁND RESEARCH UNIVERSITY 
	<p>The focus of the course had more emphasis on theoretical physics and research. From the third semester, I also took specialized courses in bio-engineering and biophysics. I also had courses in computer science, focusing mainly on C and C++ programming languages and their applications in computational physics. My thesis project was on brachytherapy treatment planning and optimization, conducted in the Radiotherapy Department of the Hungarian National Institute of Oncology.</p>
2015 SEPTEMBER : 2013 SEPTEMBER	International Baccalaureate Diploma Programme TÓTH ÁRPÁD SECONDARY SCHOOL 
	<p>I took Chemistry, Biology and English Literature as higher level subjects; and History, Mathematics and Hungarian Literature as standard level subjects.</p>

Academic Experience

Postgraduate Project

NEURORADIOLOGY DEPARTMENT OF KING'S COLLEGE HOSPITAL

MARCH 2019 — SEPTEMBER 2019



The main aim of the project was the development of an optimized and quantitative ASL-MRI data acquisition and analyses protocol for dementia patients in the Neuroradiology Department of King's College Hospital. In order to achieve this, I developed a **MATLAB** based code, implementing common tools used in the processing and analyses of images acquired with the use of ASL-MRI on test subjects. Further tools for image segmentation were also explored and applied based on pre-existing atlases. For effective data visualization, an additional python application was implemented. The project was carried out in the Neuroradiology Department of King's College Hospital.

Academic Supervisor: Enrico De Vita

Clinical Supervisor: Marco Borri

Undergraduate Project

HUNGARIAN NATIONAL INSTITUTE OF ONCOLOGY

NOVEMBER 2017 — JUNE 2018



The main aim of the project was the comparison and retrospective analyses of two optimization algorithms on patients who had undergone high dose rate brachytherapy treatment. The project involved the establishment of a set of previously optimized patient data, and the optimization of these with the new algorithm. This set of patient data was then statistically evaluated to compare the two algorithms. For this evaluation, StatSoft's STATISTICA 12 software was used. The project was carried out in the Hungarian National Institute of Oncology.

Supervisor: Georgina Fröhlich

Skills & Expertise

SPOKEN LANGUAGES

Hungarian (Native Proficiency)

English (Full Professional Proficiency)

Spanish (Elementary Proficiency)

PROGRAMMING LANGUAGES

Java (Seniority: Middle) — Python (NumPy, Pandas)

MATLAB — C — C++ — R — SQL

SOFTWARE EXPERIENCE

Tools for Programming

Git — GitHub — Jupyter Notebook — VS Code

Statistical Analytic Tools

SPSS — STATISTICA 12 — Microsoft Excel

Project Management Tools

Jira — Confluence — Notion

Adobe Creative Tools

Photoshop — Dreamweaver — Premiere Pro

References

MAGOR BABOS
MRI PHYSICIST
MRI Modality Leader
Mediso Ltd.
magor.babos@mediso.com
+36 70 931 2409

JÓZSEF SINKÓ
MRI PHYSICIST
MRI Physics Group Lead
Mediso Ltd.
jozsef.sinko@mediso.com
+36 30 539 0377

ENRICO DE VITA
MEDICAL PHYSICIST
Reader in Medical Physics
Biomedical Engineering Department
King's College London
enrico.devita@kcl.ac.uk
+44 (0) 20 7188 7188 Ext: 56322

MARCO BORRI
MEDICAL PHYSICIST
Clinical Scientist
Neuroradiology Department
King's College Hospital
marco.borri@nhs.net
+44 (0) 20 3299 9000 Ext: 34898

GEORGINA FRÖHLICH
MEDICAL PHYSICIST
Assistant Professor
Faculty of Natural Sciences
Eötvös Loránd University
frohlich.georgina@gmail.com
+36 1 224 8600 Ext: 3379