Marek Kociński

https://marekkoc.github.io
marek.kocinski@gmail.com

ORCID: 0000-0001-7088-4823

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Summary

Software Developer with extensive experience in computer science, data science, computer vision, and 2D/3D visualization. Skilled in Python, C++, Matlab and R, with a strong academic background as an Assistant Professor. Proven ability to lead and collaborate in multidisciplinary projects, communicate effectively across diverse teams, and mentor students in technical domains. Passionate about electronics, robotics, drones, and industrial applications, seeking a transition to industry to apply academic knowledge in real-world environments.

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Professional Experience

2009.09 – 2023.12: **Assistant Professor**
Institute of Electronics, Technical University of Lodz, Poland,

Taught undergraduate and graduate-level courses in: Image Processing and Computer Graphics; Image Processing and Pattern Recognition; Digital Signal Processing; Algorithms and Data Structures; Fundamentals of Programming; Microprocessors Systems; Electronic Circuits 1 and 2, Digital Systems; Graphical User Interface Designing; Medical Imaging.

Supervised more than 40 bachelor's and master's theses and co-supervised a doctoral thesis, guiding students through complex research and development projects in areas like: computer vision, biomedical image processing and analysis, 3D computer graphics, data science, robotics, medical imaging. Regularly organized and led seminars and workshops to deepen students' understanding of topics such as computer science, fundamentals of programming, fundamentals of image processing and 3D visualization.

Conducted research in biomedical engineering, leading to many peer-reviewed publications in high-impact journals on platforms such as Scopus and WebOfScience.
Participated in international **research projects**, working with academic and industry partners to develop innovative solutions in biomedical applications.

2019.10 – 2022.10: **Postdoctoral Fellow, Researcher**
Department of Biomedicine, University of Bergen, Norway
Project title: "Computational medical imaging and machine learning - methods, infrastructure and applications".
Participated in two projects involving engineering and medicine: 1) removal of non-brain tissue from 3D MRI images with the use of DL methods, and 2) Alzheimer's disease progress prediction with the use of ML algorithms. Teaching assistant in two courses at University of Bergen, Bergen, Norway and Western Norway University of Applied Science in Bergen, Norway.
Researcher, Python software developer, data scientist, machine learning scientist, deep learning scientist, writing scientific documentation, reports, posters and papers.

2006-12 – 2009-09: **Technical Support**
Institute of Electronics, Lodz University of Technology, Lodz, Poland
Laboratory setup and maintenance, preparations of laboratory materials, technical support for students, software installation.

Education

2003.09 – 2009.09: **PhD in Computer Science**
Lodz University of Technology, Poland
Title of submitted doctoral dissertation: *Quantitative analysis of vascular trees represented by digital images*. The thesis was **distinguished** by the Council of the Faculty of Electrical, Electronic, Computer and Control Engineering.

2008.09 – 2009.06: **Pedagogical Training Course for Higher Education Faculty**
Faculty of Organization and Management, Lodz University of Technology

1997.10 – 2003.11: **Master's Degree in Electronics and Telecommunication**
Lodz University of Technology, Poland
Title of submitted master's thesis: *Implementation of Two-Dimensional ADPCM in an FPGA System for Encoding Low-Frequency Wavelet Transform Coefficient*

1992.09 – 1997.06: **Jan Szczepanik Electronic Technical Secondary School**
Lodz, Poland
Final Technical Secondary School Diploma: *Design and Construction of a UHF/VHF Radio Receiver with an Antenna Signal Level Meter*

Skills

Technical Proficiencies:
Proficient in programming in **Python**, **C++, Matlab**, **R**, with experience in **Linux** and **Bash** scripting. Familiar with tools and libraries including **OpenGL**, Insight Toolkit (**ITK**), The Visualization Toolkit (**VTK**), **Qt**, **WxWidgets** and **Tkinter**. Skilled in **data analysis** and **visualization** using **Pandas**, **Matplotlib**, and **Seaborn** (and many other Python packages), as well as working with medical imaging formats like **DICOM** and **NIfTI**. Knowledgeable in **Machine Learning** and Deep **Learning** frameworks such as **scikit-learn**, **PyTorch**, **FastAI**. On a daily basis use **ITK-SNAP** and **Paraview** for advanced image processing. Familiar with version control systems like **Git** and document preparation using **LaTeX** and **LibreOffice**.

Communication and Collaboration:
Strong ability to communicate effectively and collaborate with professionals across diverse fields, including extensive experience working with medical professionals in multidisciplinary projects. Open to sharing knowledge and fostering a collaborative environment. Developed meaningful connections with students and colleagues alike, enhancing teamwork and ensuring successful project outcomes.

Research Profiles

Scopus, ORCiD, WebofScience, GoogleScholar, ResearchGate, GitHub, LinkedIn

Selected Projects

Computational medical imaging and machine learning - methods, infrastructure and applications (2019-2022)
Responsible for research, Machine Learning group seminar organization and conducting (2021), member of two projects described below: Funding source: Bergen Research Foundation, at the Mohn Medical Imaging and Visualization Center (MMIV) – Medical AI group, Department of Radiology, Haukeland University Hospital.

1. Prediction methods of conversion individuals with Mild Cognitive Impairment to Alzheimer's Disease with clinically transferable features (2020-2023)
The aim of the project was an early identification of underlying neurodegenerative processes to provide treatment before the disease was well established in the brain. To large tabular data sets we applied ML algorithms to predict conversion from mild cognitive impairment towards Alzheimer's disease.
Responsible for: research, software development, data: preparation, loading, processing, ML algorithms, visualization, results presentation.

2. Non-brain tissue removal from heterogenous set of 3D MR images with the use of Deep Learning algorithms (2019-2020)
The aim of the project was to remove non-brain tissue (eg. skull) from heterogeneous 3D brain images from seven different databases. We compared 3D and 2D CNN algorithms for 4286 3D T1-weighted images and 721 672 2D cross-sectional slices that were used as training and test sets.
Responsible for: research, conceptual work, implementation of the whole algorithms to 2D images, 3D data preparation, splinting 3D images into 2D cross-sections, 2D image management, training and testing a model, visual presentation, analysis.

Quantitative analysis of Circle of Willis blood vessels (2017-2018)
Participants: Lodz University of Technology, Lodz, Poland and University of Warmia and Mazury in Olsztyn, Olsztyn, Poland.
The aim was to quantify Circle of Willis blood vessels based on 3D CT images.
Responsible for: research, software development, 3D image: preparation, processing, analysis and quantification, 3D modeling and visualization.

Computer-aided analysis of paranasal sinus in CT images (2017-2018)
Project between Lodz University of Technology, Lodz, Poland and University of Warmia and Mazury in Olsztyn, Olszytn, Poland.
The aim of the project was to design and implement algorithms to quantify paranasal sinuses in CT images.
Responsible for: research, software development: data (3D image) preparation, processing, analysis and quantification. 3D modeling and visualization.

Parenchima: renalMRI. Magnetic Resonance Imaging Biomarkers for Chronic Kidney Disease (2015-2019)
RENALMRI.org serves as a central hub for the renal MRI community from 35 countries all over the world.
Responsible for: research, algorithms for segmentation and registration of MR kidney images.

Texture analysis of MR endometrial carcinoma images (2015-1016)
Project between Lodz University of Technology, Lodz, Poland and University of Bergen, Bergen, Norway.
The goal of the project was to find a dependence between texture parameters of MR endometrial carcinoma images and tumor tissue grade. Data set consisted of 200 individuals, every patient was assigned up to five 3D MR images (from various MR modality).
Responsible for: research, software development, data (3D images) preparation, image segmentation, analysis and visualization, time series analysis and visualization.

Computer-aided analysis of prostate cancer in multiparametric MR images (2014-2018), Participants: University of Bergen, Bergen, Norway and Lodz University of Technology, Lodz, Poland.
The aim of the project was to develop computer algorithms for multiparametric MR images analysis in order to evaluate prostate cancer.
Responsible for: research, conceptual work, MSc and PhD students supervision.

Numerical modeling of the cerebral arterial and venous blood-vessel system in macro- and meso-scale based on 3D MRI data (2013-2016)
Polish-German joint project aimed at developing continuous vascular tree models that encompass a broader range of vessel diameters by integrating numerically synthesized thin vessels with large-diameter geometric vessel models
Responsible for: research, data (3D images) preparation, segmentation, analysis, quantification, 3D modeling and visualization.

Computer-aided image-guided system for maxillofacial surgery (2012 – 2014)
Participants: Consortium consisted of Lodz University of Technology, Lodz, Poland, Medical University of Lodz, Lodz, Poland, and two local, private companies. Our goal was to design an image guided control system of a mechanical arm to perform a surgery in real time.
Responsible for: research, conceptual work.

Face 3D modeling for planning of maxillofacial surgery, (2011 - 2016)
Participants: Lodz University of Technology, Lodz, Poland and Medical University of Lodz, Lodz, Poland.
The goal of the project was to predict face soft tissue profile changes after Mandibular Setback surgery.
Responsible for: research, conceptual work, PhD student supervision.

Quantitative analysis of blood vessels from SWI MR images, (2010-2013)
Partners: Lodz University of Technology, Lodz, Poland, Medical University of Lodz, Lodz, Poland.
The aim of the project was to prove the usefulness of SWI MRI imaging sequence of brain tumor vascularization in comparison to CE T1 sequence in a standard objective way.
Responsible for: research, conceptual work, software development: data (3D image) preparation, segmentation, analysis, 2D visualization, GUI.

Quantitative analysis of vascular trees represented by digital images (2003-2009)
PhD project. The aim of the project was to find the relationship between physical and physiological parameters of a computer-simulated blood-vessel tree and its image features. I implemented a simple “MRI simulator” to generate 3D raster image that depicts geometrically described computer simulated vascular tree. Thicker branches of such a vascular system were extracted by segmentation algorithms, then a 3D model was implemented in order to visualize. While, thinner blood vessels were quantified by texture analysis methods. Finally, I searched for relation among physical and physiological parameters used to generate vascular tree and 3D image texture features.
Responsible for: research, software development, implementation of all algorithms: “MRI simulator”, conversion vector describing blood vessels to 3D raster image, blood vessel segmentation algorithms and analysis, 3D modeling and visualization, 3D texture analysis, statistical analysis.

Exhange model between blood vessel and surrounding tissue (2005-2006)
It was part of Marie Curie Project at University of Bergen, Bergen, Norway.
The project aimed to implement an exchange model between blood vessels and surrounding tissue via vessel membrane. For that purpose Comsol Multiphisics software was used.
Responsible for: research, prepare and run flow simulations: blood flow through vessels and vessel-tissue exchange simulation.

B21 - Physiological modelling of MR image formation
COST. European Cooperation in Science and Technology (2003-2007).
Cooperation of scientific institutions from 19 countries. The main objective was to determine how MRI-based software, simulation techniques, and data processing algorithms can provide a flexible and cost-effective environment for modeling tissue physiology.
Responsible for: research, software development, algorithms for modeling blood vessel images, segmentation and visualization of 3D vascular MR images

Computer simulation of vascular tree growth and blood flow simulation (2003)
Internship at CFD Research Corporation, Huntsville, AL, USA. We implemented a vascular tree growth algorithm based on physical and physiological assumptions. The final blood vessel tree was a 3D with geometrically described branches. Next, with the use of CFD software, that model was used to simulate blood flow through its branches and simulate blood flow within surrounding tissue.
Responsible for: research, software development, 3D visualization, blood flow simulation.

Teaching Experience

Medisinsk bildebehandling, kunstig intelligens og innovasjon i radiografi, (RAD230),
Teaching Assistant (05.2022)
Western Norway University of Applied Science in Bergen, Norway,

In vivo imaging and physiological modeling - BMED 360,
Teaching Assistant (2022, 2021, 2020)
University of Bergen, Department of Biomedicine,

Courses given at Lodz University of Technology, Poland between 2003-2019
I developed **course content** and **syllabus** for majority of the following courses.

Fundamentals of Programming,
Lecturer and hands-on lab instructor (courses run between 2012 and 2019)
I fully developed and co-created content the syllabus of the subject. Programming language Python. Scope: If statements, functions, IO operations for various data files (text, images, json), data representation, 2D visualization. Course for biomedical engineering students.

Algorithms and Data Structures,
Lecturer and hands-on lab instructor (courses run between 2012 and 2019)
I fully developed and co-created the curriculum for the subject. Fundamental algorithms and data structures in Python. Course for biomedical engineering students.

Image Processing and Computer Graphics,
Hands-on lab instructor (courses run between 2009 and 2018)
I fully developed and co-created the curriculum. Programming language: Python. IO image operations, various image formats (includes medical file formats Dicom, NIfTI), brightness transformations, context image filtering, morphology operations, 3D visualization (VTK), object surface extraction (marching cubes). Course for biomedical engineering students.

Image Processing and Pattern Recognition,
Hands-on lab instructor (2009, 2010)
Programming language: Python. Fundamental image processing and pattern recognition algorithms. Course for biomedical engineering students.

Image Processing
Hands-on lab instructor (2009, 2010, 2011, 2012)
Programming language: C++. Fundamental image processing.

Computer Graphics
Hands-on lab instructor (2009, 2010)
Programming language: C++. Fundamental of computer graphics: 3D scene, basic primitives, light, shading, object: rotations, transformations.

Medical Imaging,
Hands-on lab instructor (2011, 2012)
I fully developed and co-created the curriculum. Basic knowledge about medical imaging systems: MRI, CR, USG, etc. Imaging of various human body organs: brain, kidney, neck, joints, etc. Course for biomedical engineering students.

Digital Signal Processing
Hands-on lab instructor. (2009, 2010, 2017, 2018)
I co-created the curriculum for this subject. Programming language: Python. Storing/loading: text, binary, Matlab and wav files, discrete signals, plotting signals (time scale and amplitude resolution), time series, filters: FIR, IIR, Fourier Transform. Course for biomedical engineering students.

Electronic Circuits 1
Hands-on lab instructor (2003, 2004, 2007, 2011 ,2012)
DC Power Supply Circuits, FET Amplifier, BJT Amplifier, Operational Amplifier

Electronic Circuits 2
Hands-on lab instructor (2003, 2004, 2007, 2011 ,2012)

Electronics and Electrical Engineering
Hands-on lab instructor (2010, 2011, 2012)

Microprocessors systems
Hands-on lab instructor (2006, 2007)

Fundamentals of Digital Systems,
Hands-on lab instructor (2003, 2004, 2005, 2006, 2007)

De Morgan's laws, logical functions: AND, OR, NOR, XOR, function minimization, combinational circuits, multiplexers, RAM memory.

Graphical User Interface Designing,
Hands-on lab instructor (2009)
GUI in JAVA, QT, WxWidget, Borland Builder

Introduction to Modern Engineering
Lecturer. I prepared the lecture.(2007, 2008)

Data protection in computer networks
Hands-on lab instructor (2006, 2007, 2008)

Electronic Measurement Systems
Hands-on lab instructor (2004, 2005)
Labview.

Thesis Supervision

1. Super-resolution reconstruction of three-dimensional magnetic resonance images using deep and transfer learning – PhD dissertation, co-supervisor, 2020.
2. Coronary artery centerline extraction in 3D CT images using Deep Learning algorithms – MSc thesis, co-supervisor, 2019
3. Modeling of Blood Vessel Branching Surfaces – BSc thesis, co-supervisor, 2018
4. Artificial neural network for estimation of geometric parameters of an object visualized in a 3D image- MSc thesis, co-supervisor, 2018
5. Inertial sensors analysis integrated with a moving objects – BSc thesis, supervisor, 2018
6. Numerical Assessment of Kidney Function from DCE-MRI – MSc thesis, co-supervisor, 2018
7. Segmentation of CT images of nasal cavity with the use of Deep Learning
8. Algorithms – BSc thesis, co-supervisor, 2018
9. Device for mechanical hand phantom control – BSc thesis, co-supervisor, 2018
10. Program for texture analysis of biomedical images with the use of machine learning algorithm – BSc thesis, co-supervisor, 2018
11. Classification of Biomedical Images Using a Deep Learning Algorithm – BSc thesis, co-supervisor, 2018
12. Computer analysis of geometrical structure of brain arterial circle – BSc thesis, co-supervisor, 2018
13. Program for texture analysis of biomedical images with the use of machine learning

algorithms – BSc thesis, co-supervisor, 2018

14. Computer modeling of blood vessel tree growth – MSc thesis, co-supervisor, 2017
15. Surface Reconstruction and Triangulation of Vessels and Bifurcations – Final Erasmus report, co-supervisor, 2017
16. Numerical skeletonization of 3D binary object – BSc thesis, co-supervisor, 2017
17. Segmentation of thick blood vessel regions in 3D MR brain images – BSc thesis, co-supervisor, 2017
18. Image Segmentation and Feature Extraction for Hand Gesture Recognition – Final Erasmus report, co-supervisor, 2017
19. Design of 3D-printed physical phantoms for blood vessels MRI – Final Erasmus report, co-supervisor, 2017
20. Design of a web portal allowing transfer and visualization of 3D biomedical images in NIfTI format – BSc thesis, co-supervisor, 2017
21. Computer co-registration of monochromatic 3D images – BSc thesis, co-supervisor, 2016
22. Modeling of a blood vessel tree bifurcation in 3D images – BSc thesis, supervisor, 2016
23. Methods of quantitative texture analysis, Finale Erasmus report, co-supervisor, 2016
24. Computing skeleton lines of closely positioned branches of a blood vessel tree in 3D images – BSc thesis, co-supervisor, 2016
25. Machine Learning in Prostate Cancer Diagnosis Using Multiparametric MRI (mpMRI) – MSc thesis, co-supervisor, 2015
26. Face Detection and Reconstruction using OpenCV – BSc thesis, supervisor, 2015
27. Detection and tracking of human eye pupil in real time images – BSc thesis, supervisor, 2015
28. Controlling Electronic Circuits by means of EMG Signals – BSc thesis, supervisor, 2015
29. Real Time Pupil Detection and Tracking using Internet Camera – Final Erasmus report, co-supervisor, 2014
30. Face Detection and Recognition using OpenCV- Final Erasmus report, co-supervisor, 2014
31. Modeling of a blood vessel tree bifurcation in 3D images – BSc, supervisor, 2014
32. System for food quality assessment – BSc thesis, supervisor, 2014
33. Determination of Blood Vessel Tree Parameters Mapped in 3D MRI Images Using Mathematical Morphology – PhD dissertation, co-supervisor, 2014
34. Software for tubular structures' segmentation depicted in 3D raster images – BSc thesis, supervisor, 2014
35. Software for visualization of the brain Functional Connectivity network based on Magnetic Resonance Images – BSc thesis, supervisor, 2013
36. Neuron segmentation from confocal microscopy and export to a swc file- Final Erasmus report, supervisor, 2013
37. Estimation of texture: features in medical images – Final Erasmus report, supervisor, 2012
38. Blood vessels segmentation in magnetic resonance images – Final Erasmus report, supervisor, 2012

39. Program for conversion among medical file formats – BSc thesis, supervisor, 2011
40. Morphometric Analysis of Skeletal Remains using Image Processing Techniques- Final Erasmus report, supervisor, 2011
41. Computer application for viewing medical images, Final Erasmus report, supervisor, 2011
42. Conversion of Vector-Described Objects in a 3D Scene to a Raster Image, BSc thesis, supervisor, 2011
43. Brain connectivity – Final Erasmus report, University of Bergen, co-supervisor, 2011
44. Blood vessels segmentation in magnetic resonance images with the use of gradient matrix – MSc thesis, co-supervisor, 2011

Guest Lectures and Courses

Introduction to Python Programming Language
Lecture with hands-on lab.
Institute of Engineering of Porto, Porto, Portugal, 05.2015

Introduction to Python Programming Language
Lecture with hands-on lab.
Institute of Engineering of Porto, Porto, Portugal, 05.2013

Texture analysis of MR images with the use of MaZda software.
Course of MaZda software in 2D/3D texture analysis
Department of Biomedical Engineering, Tampere University of Technology, 07.2011

Certifications

PARENCHIMA (2019)
Valencia Training Workshop - Duration: 2 days, The objective of this training was to learn how to integrate a self developed algorithm on an QUIBIM SL (Quantitative Imaging Biomarkers in Medicine) platform to calculate biomedical images biomarkers.

Functional MRI for renal parenchymal disease: Ready for clinical practice? (2015)
Duration: 3 days, The objective of this conference was to create the foundations for an international scientific community in the field of functional renal MRI, and catalyze the setup of international collaborations addressing the key future challenges of this technology. The meeting focused on all functional techniques including more established methods (DWI/DTI,

DCE, BOLD, ASL) and more novel developments (IVIM, Sodium, T1rho, MT, elastography, …).

3D scanning and measure inspection (2012)
Duration: 1 day, Krakow, Poland

Python for Scientists & Engineers (2011)
Duration: 5 days. Canopy, Inc, Austin, TX, USA: intended for scientists and engineers, solid base to build high-quality software, standard data structures, control constructs, code organization, scientific Python ecosystem, numeric data processing, efficiently manipulating and processing large data sets using NumPy and data visualization with 2D plots using Matplotlib, write robust and efficient Python code, Python debugger, interfaces between Python and other languages such as C and C++, building scientific Graphical User Interfaces (GUIs).

First International Workshop on MRI Phase Contrast and Quantitative Susceptibility Mapping (2011) - Duration: 3 days, Jena, Germany

Languages

Norwegian basics, **English**, fluent spoken and written, **Polish**, mother tongue.

Professional Interests and Passions

Electronics, (embedded systems, robotics, CPLD, FPGA, drones, smart homes, IoT), **photography**, **hiking**, **cooking**.

Publications

2023

Personalized prognosis & treatment using Ledley-Jaynes machines: An example study on conversion from Mild Cognitive Impairment to Alzheimer's Disease, P.G.L. Porta Mana, I. Rye, A. Vik, **M. Kociński**, A. Undersold, A. J. Lundervold, A. S. Lundervold: *Open Science Framework doi: 10.31219/osf.io/8nr56*

Functional activity level reported by an informant is an early predictor of Alzheimer's disease, A. Vik, **M. Kociński**, I. Rye, A. J. Lundervold, A. S. Lundervold, BMC Geriatr 23, 205 (2023). https://doi.org/10.1186/s12877-023-03849-7

CNN-Based Quantification of Blood Vessels Lumen in 3D Images, A. Materka, J.Jurek, **M. Kociński**, A. Klepaczko, In: Mikyška, J., de Mulatier, C., Paszynski, M., Krzhizhanovskaya, V.V., Dongarra, J.J., Sloot, P.M. (eds) Computational Science – ICCS 2023. ICCS 2023. Lecture Notes in Computer Science, vol 14074. Springer, Cham. https://doi.org/10.1007/978-3-031-36021-3_62

2022

Predicting conversion to Alzheimer's disease in individuals with Mild Cognitive Impairment using clinically transferable features. I. Rye, A. Vik, **M.Kociński** , A.S. Lundervodld, A.J. Lundervold, Sci Rep 12, 15566 (2022). https://doi.org/10.1038/s41598-022-18805-5

2021

Kidney Segmentation in Renal Magnetic Resonance Imaging – Current Status and Prospects, F. G. Zöllner, **M. Kociński**, L. Hansen, A.-K. Golla, A. Šerifović- Trbalić, A. Lundervold, A. Materka, P. Rogelj, in IEEE Access, vol. 9, pp. 71577-71605, 2021, doi: 10.1109/ACCESS.2021.3078430.

2020

Image registration in dynamic renal MRI—current status and prospects, F. G. Zöllner, A. Šerifović-Trbalić, G. Kabelitz, **M. Kociński**, A. Materka, P. Rogelj, Magn Reson Mater Phy 33, 33–48 (2020). https://doi.org/10.1007/s10334-019-00782-y

2D and 3D U-Nets for skull stripping in a large and heterogeneous set of head MRI using fastai, S. Kaliyugarasan, **M. Kociński**, A. Lundervold, A. S. Lundervold, for the Alzheimer's Disease Neuroimaging Initiative and for the Australian Imaging Biomarkers and Lifestyle flagship study of ageing, Norsk IKT-konferanse for forskning og utdanning

On the Effect of DCE MRI Slice Thickness and Noise on Estimated Pharmacokinetic Biomarkers – A Simulation Study, J. Jurek, L. Reisæter, **M. Kociński**, A. Materka, In: L.J. Chmielewski, R. Kozera, A. Orłowski, (eds) Computer Vision and Graphics. ICCVG 2020. Lecture Notes in Computer Science(), vol 12334. Springer, Cham. https://doi.org/10.1007/978-3-030-59006-2_7

*CNN-based superresolution reconstruction of 3D MR images using thick-slice scans, J. Jurek, **M. Kociński**, A. Materka, M. Elgalal, A. Majos, Biocybernetics and Biomedical Engineering Volume 40, Issue 1, January–March 2020, Pages 111-125*

2018

Fusion of Resampled 3D MR Images for Geometric Modeilng of Blood Vessels, **M. Kociński,** A. Materka, M. Elgalal, A. Majos, ICSES 2018 International Conference on Signals and Electronic Systems, September 10-12, 2018, Krakow, Poland, IEEE Conference

Centerline-Radius Polygonal-Mesh Modeling of Bifurcated Blood Vessels in 3D Images using Conformal Mapping, C. Vinhais, ***M. Kociński***, A. Materka, SPA 2018, Signal Processing Algorithms, Architectures, Arrangements, and Application, 19-21 September 2018, Poznan, Poland, IEEE Conference

Dictionary-based through-plane interpolation of prostate cancer T2-weighted MR images, J. Jurek, ***M. Kociński***, A. Materka, A. Losnegard, L. Reisæter, O. J. Halvorsen, Ch. Beisland, Jarle Røvik, A. Lundervold, SPA 2018, Signal Processing Algorithms, Architectures, Arrangements, and Application, 19-21 September 2018, Poznan, Poland, IEEE Conference

CFR-Based Clustering of Pharmacokinetic Curves from Dynamic Contrast-Enhanced MR images, J. Jurek, M. Pelesz, A. Wojciechowski, A. Klepaczko, ***M. Kociński***, A. Materka, A. Losnegard, L. Reisæter, O. J. Halvorsen, Ch. Beisland, Jarle Røvik, A. Lundervold, SPA 2018, Signal Processing Algorithms, Architectures, Arrangements, and Application, 19-21 September 2018, Poznan, Poland, IEEE Conference.

2017

On accuracy of personalized 3D-printed MRI-based models of brain arteries, **M. Kociński,** A. Materka, M. Elgalal, A. Majos, IWSSIP 2017, International Conference on Systems, Signals and Image Processing, 22-24 May 2017, Poznan, Poland, IEEE Conference

Towards multi-scale personalized modeling of brain vasculature based on magnetic resonance image processing, **M. Kociński,** A. Materka, A. Deistung, J. Reichenbach, A. Lundervold, IWSSIP 2017, International Conference on Systems, Signals and Image Processing, 22-24 May 2017, Poznan, Poland, IEEE Conference

On extracting skeletons from binary 3D images, P. Zasiński, **M. Kociński,** A. Materka, IWSSIP 2017, International Conference on Systems, Signals and Image Processing, 22-24 May 2017, Poznan, Poland, IEEE Conference

Resonstruction of High-Resolution T2W MR Images of the Prostate Using Maximum A Posteriori Approach and Markov Random Field Regularization, J. Jurek, **M. Kociński,** A. Materka, A. Losnegard, L. Reisaeter, O. Halvorsen, Ch. Beisland, J. Røvik, A. Lundervold, SPA 2017, Signal Processing Algorithms, Architectures, Arrangements, and Application, 20-22 September 2017, Poznan, Poland, IEEE Conference

Rule-Based Data-Driven Approach for Computer Aided Diagnosis of the Peripheral Zone Prostate Cancer from Multiparametric MRI: proof of concept, J.Jurek, **M. Kociński,** A. Materka, A. Losnegard, L. Reisaeter, O. Halvorsen, Ch. Beisland, J. Røvik, A. Lundervold, SPA 2017, Signal Processing Algorithms, Architectures, Arrangements, and Application, 20-22 September 2017, Poznan, Poland, IEEE Conference

2016

Towards consolidation of MRI-Based Macro- and Mesoscale Models of Cerebral Vasculature, **M. Kociński**, A. Materka, A. Deistung, J.R Reichenbach, Magnetic Resonance Materials in Physics, Biology and Medicine, Volume 19, Issue 1, Suplement, September 2016 (IF=2.638)

Texture Parameters of DCE-Derived Blood Pharmacokinetic Maps as Possible Biomarkers of Endometrial Carcinoma Grade, **M. Kociński**, A. Materka, A. Lundervold, Helga B. Salvesen, Sigmund Ytre-Hauge, Ingfrid S. Haldorsen, Magnetic Resonance Materials in Physics, Biology and Medicine, Volume 19, Issue 1, Suplement, September 2016 (IF=2.638)

Soft Tissue Profile Changes After Mandibular Setback Surgery, K. Bogusiak, **M. Kociński**, A. Łutkowski, A. Materka, A. Neskoromna-Jędrzejczak, Dental and Medical Problems,53(4):447-453, (ICV:113.75, MNiSW:2016-11 pkt.)

Changes in Measurement of Segner-Hasund Analysis in Patients with Mandibular Prognathism after Orthognathic Surgery, K. Bogusiak, **M. Kociński**, A. Łutkowski, Andrzej Materka, Piotr Arkuszewski, Dental and Medical Problems,53(1):13-21, (ICV:113.75, MNiSW:2016-11 pkt.)
Three-dimensional imaging in maxillofacial and plastic surgery, K. Bogusiak, **M. Kociński**, A. Łutkowski, Andrzej Materka, Piotr Arkuszewski, Aleksander Przygoński, J Stoma 2016; 69, 5:569-585

Centerline-based surface modeling of blood-vessel trees in cerebral 3D MRA, **M. Kociński**, A. Materka, A. Deistung, J.R. Reichenbach, SPA 2016, Signal Processing Algorithms, Architectures, Arrangements, and Application, 21-23 September 2016, Poznan, Poland, IEEE Conference,

Texture analysis of 2D spatial distribution of blood pharmacokinetic model parameters for endometrial carcinoma classification, **M. Kociński**, A. Materka, A. Lundervold, Helga B. Salvesen, Sigmund Ytre-Hauge, Ingfrid S. Haldorsen, SPA 2016, Signal Processing Algorithms, Architectures, Arrangements, and Application, 21-23 September 2016, Poznan, Poland, IEEE Conference,

2015
Automated Centerline-Based Modeling of Tubular Blood-Vessel Segments from 3D MRA, **M. Kociński**, J. Blumenfeld, A. Materka, A. Deinstung, B. Serres, J. Reichenbach, Magnetic Resonance Materials in Physics, Biology and Medicine, Volume 19, Issue 1, Suplement, 2015 (IF=2.638)

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