Dr. Robert J. Puzniak

Senior Data Scientist · PhD in Neuroimaging

Born: 02.09.1989 in Stockholm, Sweden
Address: Wolfsburg, Germany

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Skills

Programming	Python (PyTorch, scikit-learn, PySpark, LangChain, pandas), MATLAB, C++, LaTeX
Machine Learning	Deep Learning (CNNs, Transformers, LLMs), Clustering, Classification, Regression, Forecasting
Operations and Deployment	Github, Cloud (AWS, Databricks), Docker
Soft Skills	Presentation, Public Speaking, Communication with Stakeholders, Interviewing

Education

Ph.D. in Neuroimaging
Magdeburg, Germany

Otto-von-Guericke University Magdeburg — *2016 - 2021*

- Developed a novel **Convolutional Neural Network** capable of detecting structural malformations in visual system
- Awarded with **Marie Curie Fellowship** for young researchers
- Awarded with **GSNK Young Talent award** for doctoral thesis
- Awarded with **Scientific Award** for best scientific publication

M.Sc. in Physics (Medical Physics)
Warsaw, Poland

University of Warsaw — *2008 - 2015*

- Master thesis on **time-series analysis** of EEG signal during short-term memory activities
- **Individual study program** including classes at departments of physics, mathematics, chemistry and psychology

Experience

Senior Data Scientist
Wolfsburg, Germany

Adastra — *Apr. 2022 - PRESENT*

- Development and deployment of **Machine Learning** models for industry
- Developed and co-deployed **clustering and classification ML pipeline** that combines clustering and classification and **improved conversion rate in marketing campaign by 5 % pt**
- Co-developed **LLM** application that combines **agentic framework, RAG and generation of SQL queries**
- Developed **NLP model for RegTech** application
- Developed and deployed multiple **clustering pipelines**
- Obtained **AWS Machine Learning Specialty Certification**

Honorary Visiting Fellow
Leicester, England

University of Leicester — *Aug. 2021 - Aug. 2023*

- Developed a **novel Convolutional Neural Network for albinism diagnostics**

Research Associate
Magdeburg, Germany

Otto-von-Guericke University Magdeburg — *Feb. 2016 - Mar. 2022*

- Research on application of **diffusion MRI and Deep Learning** for imaging and detection of optic chiasm malformations
- Authored **6 scientific publications**, including **4 first-autorships**

Visiting Researcher
Eindhoven, Netherlands

Philips — *Sep. 2018 - Oct. 2018*

- Design of diffusion MRI protocols

Visiting Researcher
Bloomington, Indiana, United States

Indiana University Bloomington — *May 2017 - Jul. 2017*

- Training on processing and analysis of the diffusion MRI data
- Training under supervision of prof. Pestilli, world-class expert in diffusion MRI

Extracurricular Activity

Reviewer -

Medical Imaging with Deep Learning conference *2022, 2023*

Honors & Awards

Academia

2024 **Scientific Award for best scientific publication**, der Sachsen-Anhaltisch-Thüringischen Augenärztegesellschaft e.V. *Germany*

2023 **Young Talent Award for best doctoral thesis**, GSNK *Germany*

2016 **Marie Curie Fellowship**, European Research Council *Germany*

Industry

2023 **2nd Place in Adastra Business Challenge**, Adastra *Germany*

Conference Presentations

Big Data Neuroscience Workshop 2021 *Online*

CHIASM, the human brain albinism and achiasma MRI dataset *Sep. 2021*

5th European Days of Albinism 2020 *Norway*

Advanced imaging of the optic chiasm and its relevance for albinism diagnostics *Nov. 2020*

Aspects of Neuroscience conference 2018 *Poland*

Quantification of nerve decussation abnormalities in optic chiasm *Nov. 2018*

Publications

CHIASM-Net: Artificial Intelligence-Based Direct Identification of Chiasmal Abnormalities in Albinism *Investigative ophthalmology and visual science*

Puzniak, R. J., Prabhakaran, G. T., McLean, R. J., Stober, S., Ather, S., Proudlock, F. A., Gottlob, I., Dineen, R. A., Hoffmann, M. B. *Oct. 2023*

CHIASM, the human brain albinism and achiasma MRI dataset *Scientific Data*

Puzniak, R. J., McPherson, B., Ahmadi, K., Herbik, A., Kaufmann, J., Liebe, T., Gouws, A., Morland, A. B., Gottlob, I., Hoffmann, M. B., Pestilli, F. *Nov. 2021*

Deep Learning-Based Detection of Malformed Optic Chiasms From MRI Images *Frontiers in Neuroscience*

Puzniak, R. J., Prabhakaran, G. T., Hoffmann, M. B. *2021*

[Neuro-computational approaches for objective assessment of visual function] *Der Ophthalmologe*

Hoffmann, M. B., Choritz, L., Thieme, H., Prabhakaran, G. T., **Puzniak, R. J.** *Sep. 2021*

Tracking the visual system—from the optic chiasm to primary visual cortex *Zeitschrift für Epileptologie*

Puzniak, R. J., Prabhakaran, G. T., Buentjen, L., Schmitt, F. C., Hoffmann, M. B. *Feb. 2021*

Triple visual hemifield maps in a case of optic chiasm hypoplasia *NeuroImage*

Ahmadi, K., Fracasso, A., **Puzniak, R. J.**, Gouws, A. D., Yakupov, R., Speck, O., Kaufmann, J., Pestilli, F., Dumoulin, S. O., Morland, A. B., Hoffmann, M. B. *Jul. 2020*

Quantifying nerve decussation abnormalities in the optic chiasm *NeuroImage: Clinical*

Puzniak, R. J., Ahmadi, K., Kaufmann, J., Gouws, A., Morland, A. B., Pestilli, F., Hoffmann, M. B. *Jan. 2019*