

Dr. IBTISAM

BIOMEDICAL IMAGING SCIENTIST | MR RESEARCH SCIENTIST | AI DATA SCIENTIST

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PROFILE SUMMARY

I am an experienced Data Scientist, MR Physicist and R&D Engineer with over 10 years of expertise specializing in MRI acquisition, reconstruction, and AI-driven image analysis. I am skilled in integrating deep learning, statistical modeling, and radiomics to extract meaningful biomarkers from complex multimodal datasets. Over 10 peer-reviewed publications and 30+ international presentations, with hands-on experience operating Siemens 1.5T, 3T, and 7T MRI systems, I am dedicated to translating imaging innovations into clinically impactful solutions.

CORE EXPERTISES

AI in Medical Imaging | MRI Protocols & Reconstruction | Diffusion MRI | Deep & Machine Learning | Computer Vision | Image Segmentation | Radiomics | Biomarker Discovery | Clinical Data Science | Statistical Modelling | Data Analysis | Multimodal Imaging - Neuro/Cardiac/Renal | Project Management

TECHNICAL SKILLS

- **Programming:** MATLAB, Python, R, Bash
- **Deep / Machine Learning:** OpenCV, CNNs, TensorFlow, Keras, PyTorch, Scikit-learn, Statsmodels, NumPy, Matplotlib, Seaborn, Pandas
- **Platforms:** MATLAB, Anaconda, RStudio, Linux
- **Imaging Software:** CVI42, Osirix, Horos, 3D Slicer, ITK-Snap, FSL, MRtrix3, ANTs
- **Microsoft Office:** Word, Excel, PowerPoint, Publisher, PowerBI

RECENT PROFESSIONAL EXPERIENCES

Post-Doctoral Researcher

May. 2024 – Aug. 2025

📍 | Radiology, CHUV (UNIL), Lausanne, CH ----- Geneva Memory Center, HUG (UNIGE), Geneva, CH |

- Led a 7T advanced Diffusion Weighted Imaging (DWI) project investigating glymphatic flow in the human brain
- Developed resting-state fMRI preprocessing pipeline for subjective cognitive decline (SCD) cohort.
- Conducted multimodal MRI, PET, and neuropsychological data analysis to explore biomarkers of Cognitive decline
- Supporting MRI data management and preprocessing workflows.
- Volunteer recruitment, data acquisition, preprocessing, and microstructural analysis

Doctoral Research Fellow

Mar. 2019 – Apr. 2024

📍 | Radiology, HUG (UNIGE), Geneva, CH |

- Optimized Radial and DWI acquisition protocols for cardiac & Renal MR imaging at 3T
- Developed MR image reconstruction method for cardiac MRI using both conventional and AI-based approaches
- Developed Deep Learning method to streamline and automate the analysis of allograft renal CKD patients.
- Responsible for CKD patients scheduling and scanning at 3T MRI (both Cardiac & Renal exams)
- Responsible for Data analysis and statistical modeling

Lab Engineer

May. 2016 – Feb. 2019

📍 | COMSATS University Islamabad – Islamabad, PK |

- Supervised ML, segmentation, and signal processing projects, turning research ideas into practical solutions.
- Mentored junior researchers in imaging algorithms and complex data workflows, boosting team productivity

EDUCATION

Ph.D. in Life Sciences, (Physics of Biology)

Mar. 2019 – Feb. 2024

University of Geneva, Geneva, Switzerland

MS Electrical Engineering (Electronics) – CGPA 3.58/4.00

Feb. 2014 – Feb. 2016

COMSATS University Islamabad, Islamabad, Pakistan

REFERENCES

*Reference will be provided upon request

LIST OF SLECTED PUBLICATIONS

Journals:

1. A. Huber, I. Aslam, L. Crowe, M. Pruijm, T. Perrot, S. Seigneux, JP. Vallée, L. Berchtold, **“T1 mapping magnetic resonance imaging predicts decline of kidney function”**, Clinical Kidney Journal, Volume 18, Issue 3, (2025)
2. Y. Bilal, I. Aslam, M. F. Siddiqui, O. Inam, K. Amjad, J. H. Alkhateeb, and H. Omer. 2024. **“GROG Facilitated Compressed Sensing for Radial MRI.”** IEEE Access 12: 178441–59 (2024)
3. I. Aslam, F. Aamir, M. Kassai, L. A. Crowe, P.-A Poletti, S. De Seigneux, S. Moll, L. Berchtold, J.-P. Vallee **“Validation of automatically measured T1 map cortico-medullary difference (ΔT_1) for eGFR and Fibrosis assessment in allograft kidneys”**. PLOS ONE 18 (2023)
4. I. Aslam, L. A CROWE, M. KASSAI, H. Omer and JP. VALLEE, **“Real-time, Single Breath-hold, Multi-slice, 2D Cine Radial MR Image Reconstruction using sc-GROG k-t ESPIRiT”** Biomed. Phys. Eng. Express: 8 (6), (2022)
5. L. Berchtold, L. A. Crowe, C. Combescure, M. Kassai, I. Aslam, D. Legouis, S. Moll, P-Y Martin, S. De Seigneux, J.P. VALLEE, **“Diffusion-Magnetic Resonance Imaging predicts decline of kidney function in chronic kidney disease and in patients with a kidney allograft”**. Kidney Int. (2022)
6. F. Aamir, I. Aslam, M. Irshad and H. Omer, **“Accelerated Diffusion-Weighted MR Image Reconstruction Using Deep Neural Networks”**, Journal of Digital Imaging, pp. 1-13, 2022.
7. I. Aslam, F. Najeeb, and H. Omer, **“Accelerating MRI Using GROG Gridding Followed by ESPIRiT for Non-Cartesian Trajectories,”** Appl. Magn. Reson., vol. 49, no. 1, pp. 107–124 (2018)

Conferences:

1. I. Aslam, T. Pavan, F. Ribaldi, G. Quattrini, V. Garibotto, G. Frisoni, M. Pievani, I. Jelescu **“Assessing Structural and Microstructural Differences in the Hippocampal subfields and Associated White Matter Pathways in Cognitive Impairment using 7T MRI”** presented in Swiss Dementia Forum, 6-7 Nov, 2025, Bern, Switzerland
2. I. Aslam, T. Pavan, A. Spencer, R. Martuzzi, F. Ribaldi, G. Frisoni, I. Jelescu, **“Assessing Glymphatic Dynamics in the Human Brain Using Cardiac-Gated diffusion MRI at Ultra-High Field”**, in proceedings of ISMRM & ISMRT Annual Meeting & Exhibition 2025, Honolulu, Hawai‘i, USA (**Abstract ID: 6711** -Power Pitch)
3. I. Aslam, F. Aamir, M. Kassai, L. A. Crowe, S. De Seigneux, S. Moll, L. Berchtold, J.-P. Vallee **“Validation of automatically measured ΔT_1 values correlated with eGFR and fibrosis assessment of allograft kidneys”**, in proceedings of 31st Joint Annual Meeting ISMRM-ESMRMB London, England, United Kingdom, 07-12 May 2022 (**Abstract # 0481**: Power Pitch)
4. I. Aslam, F. Aamir, M. Kassai, L. A. Crowe, S. De Seigneux, S. Moll, L. Berchtold, J.-P. Vallee **“Validation of Automatically Measured ΔT_1 values Correlated with eGFR and Fibrosis of Allograft Kidneys”**, accepted in Swiss Congress of Radiology (SSR), June 23-25, 2022, (**Presented** - Oral Presentation)
5. I. Aslam, F. Aamir, L.A. CROWE, M. KASSAI, H. Omer, J.P. VALLEE **“CNN U-Net based Automated Cortex and Medulla Segmentation of Transplanted T1 map Chronic kidneys”** in proceedings of ISMRM Workshop on Kidney MRI Biomarkers: The Route to Clinical Adoption: (Philadelphia • Lisbon • Online), Sep. 10 – 12, 2021 (**Presented**- Power Pitch)
6. I. Aslam, F. Aamir, L.A. CROWE, M. KASSAI, H. Omer, J.P. VALLEE **“Reconstruction of Whole-Heart Cardiac Radial MRI using Neural Network Transfer Learning Approach”** in proceedings of 29th ISMRM Annual Scientific Meeting (ONLINE), May. 15 – 20, 2021 (**Abstract # 3538**)
7. I. Aslam, L. A CROWE, M. KASSAI, J. VALLEE, H. Omer **“Reconstruction of Highly Accelerated Radial Cardiac Cine MRI using GROG based k-t ESPIRiT with TV Constraint”** in proceedings of 27th ISMRM Annual Meeting & Exhibition, 11-16 May 2019, Montreal, Canada. (**Abstract #4756**)

*Full list of publications: <https://scholar.google.com/>

