Dr. IBTISAM ASLAM

MR SCIENTIST & PHYSICIST | DATA SCIENTIST | ELECTRICAL ENGINEER

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PROFILE SUMMARY

I am an experienced R&D Engineer and Data Scientist specializing in medical imaging, with over five years of expertise in advanced MRI acquisition, reconstruction, and AI-driven analysis across neuro, cardiac, and renal applications. I integrated deep learning, statistical modeling, and radiomics to derive meaningful biomarkers from complex imaging datasets. With 10+ peer-reviewed publications and 30+ international conference presentations, I have a strong research background alongside hands-on experience in operating Siemens 1.5T, 3T, and 7T MRI scanners. Furthermore, proficient in MATLAB, Python, R, Bash and imaging software. I excel at translating engineering innovation into clinically impactful solutions.

EXPERTISE

Medical Imaging | MR Image Reconstruction | MRI Protocol optimization | Diffusion Imaging | Deep Learning | Radiomics | Computer Vision | Data Analysis & Statistical Modeling | Project Management |

TECHNICAL SKILLS

- **Programming:** MATLAB, Python, R, Bash
- **Simulation Tools:** MATLAB, Anaconda, RStudio, Linux, High Frequency Structure Simulator (HFSS)
- **Clinical Software:** CVI42, HOROS, 3D Slicer, ITK-Snap, FSL, MRtrix3, ANTs
- **Microsoft Office:** Word, Excel, PowerPoint, Publisher

RECENT PROFESSIONAL EXPERIENCE

Post-Doctoral Researcher ***May 2024 – August 2025***

| Radiology, CHUV (UNIL), Lausanne, CH – 60% ---- Geneva Memory Center, HUG (UNIGE), Geneva, CH – 40% |

- 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 ***March 2019 – April 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

EDUCATION

Ph.D. in Life Sciences, Specialization in 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

BS Electrical Engineering (Electronics) -- CGPA 3.23/4.00 **Sept. 2008 – Sept. 2012**
The University of Faisalabad, Faisalabad, Pakistan

REFERENCES

Prof. Dr. Ileana Jelescu (PhD)
Head Microstructure Mapping Lab
Dept. of Radiology, Lausanne University Hospital (CHUV), Lausanne, Switzerland
Email: ileana.jelescu@chuv.ch

Prof. Dr. Jean-Paul VALLÉE (MD, PhD)
Head Functional Cardiac Imaging
Dept. of Radiology and Medical Informatics, HUG/UNIGE, Geneva, Switzerland
Email: Jean-Paul.Vallee@hug.ch

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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, March 2025, sfaf032,*
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 (ΔT1) for eGFR and Fibrosis assessment in allograft kidneys".** PLOS ONE 18 (2023), e0277277*
4. *M. Pruijm, I. Aslam, B. Milani, W. Brito, M. Burnier, N. M Selby, and J-P Vallée. **"Magnetic Resonance Imaging to Diagnose and Predict the Outcome of Diabetic Kidney Disease—Where Do We Stand?".** Kidney and Dialysis 2, no. 3 (2022): 407-18.*
5. *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 (2022): 8 (6), 065037*
6. *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). doi:10.1016/j.kint.2021.12.014*
7. *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.*
8. *F. Najeeb, M. Usman, I. Aslam, S.A. Qazi and H. Omer, "**Respiratory motion-corrected, compressively sampled dynamic MR image reconstruction by exploiting multiple sparsity constraints and phase correlation-based data binning"**. MAGMA, Vol 33(3), pp:411-419 (2020 - Impact Factor: 1.956).*
9. *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 - Impact Factor: 0.77)*

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"** submitted 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. *A. Huber, I. Aslam, S. Seigneux, T. Perrot, JP. Vallée, M. Pruijm, L. Berchtold, **#2484 Diffusion magnetic resonance imaging, a noninvasive tool to assess fibrosis level in both native and allograft kidneys**,* Nephrology Dialysis Transplantation*, Volume 39, Issue Supplement_1, May 2024, gfae069–0697–2484, https://doi.org/10.1093/ndt/gfae069.697*
4. *A. Huber, S. Seigneux, I. Aslam, T. Perrot, JP Vallée, M. Pruijm, L. Berchtold**, #2478 Multiparametric magnetic resonance imaging predicts decline of kidney function but does not perform better than diffusion-weighted MRI alone**,* Nephrology Dialysis Transplantation*, Volume 39, Issue Supplement_1, May 2024, gfae069–1431–2478, https://doi.org/10.1093/ndt/gfae069.1431*
5. *D. Wenz, T. Perrot, I. Aslam, G. F. Piredda, et.al. **"Prostate MRI at 7T using high-performance gradients and an 8Tx/16Rx RF array: a clinical feasibility study"**, in proceedings of 33rd ISMRM Annual Meeting & Exhibition, 04-09 May 2024, Singapore (Abstract #3517)*
6. *P. Calarnou, A.C. Ogier, J.B. Ledoux, I. Aslam, J.P. Vallée, J. Yerly, and R. B. V. Heeswijk, **"Navigator-gated 2D radial MR fingerprinting of the kidney at 3T",** in proceedings of 33rd ISMRM Annual Meeting & Exhibition, 04-09 May 2024, Singapore, (Abstract #2753)*
7. *I. Aslam, F. Aamir, M. Kassai, L. A. Crowe, S. De Seigneux, S. Moll, L. Berchtold, J.-P. Vallee "**Validation of automatically measured ΔT1 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)*

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