


<p>Name: Laura Harsan E-mail: harsan@unistra.fr</p>		<p>Associate Professor in Biophysics and Medical Physics,</p> <ul style="list-style-type: none"> - Habilitation to Direct Research (HdR) in NeuroImaging / Neurosciences - Faculty of Medicine, UNISTRA - ICube Lab; UMR 7357
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Positions

<p>2018 – present:</p> <ul style="list-style-type: none"> - Head of the research team: Integrative Multimodal Imaging in Healthcare (IMIS); - The Engineering science, computer science and imaging laboratory (ICube) - UMR 7357 - Principal Investigator for the preclinical neuroimaging research themes within ICube. - Member of the Biophysics and Nuclear Medicine Service, Imaging Pole, University Hospitals, Strasbourg - Affiliate member of McGill University (2014-2019), Faculty of Medicine, Montreal <p>Sept. 2018 Appointed as Associate Professor – Faculty of Medicine, University of Strasbourg</p> <p>2015 – 2018 Researcher: “Preclinical MR Neuroimaging” Teaching and Research: Faculty of Medicine, University of Strasbourg, ICube Lab – UMR 7357, Strasbourg, France</p> <p>2013 – 2015 Principal Investigator and team leader: “Preclinical MR Neuroimaging” Advanced Molecular Imaging Center (AMIR), Department of Medical Physics, University Medical Center and University of Freiburg, GERMANY <i>Research:</i> Preclinical magnetic resonance imaging (MRI) in mouse models of brain disorders</p> <p>2008 – 2012 Post-doc: Advanced Molecular Imaging Center, University Medical Center and University of Freiburg; GERMANY, fellowship from Humboldt German Foundation.</p>	
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L Harsan: research focus

- Development and application of MRI technologies in Neuroscience (Preclinical and Clinical)
- Non-invasive mapping of mouse brain structural and functional connectome with MRI
- Main Applications:
 - Gene to brain network signatures, developmental disorders
 - Cerebral connectivity in neurodegeneration
 - Biomarkers of therapies using MRI

The Integrative Multimodal Imaging in Healthcare (IMIS) team of ICube Lab – led by Laura Harsan, is focused on the Magnetic Resonance Imaging methods development and applications for clinical and fundamental neuroscience. The main objectives are the identification and validation of new relevant imaging signatures, to better understand, predict, diagnose and cure neurological disorders (Alzheimer's, Lewy body dementia and other cognitive deficits) or psychiatric (mood disorder depression) or neurodevelopmental (Down syndrome) pathologies. IMIS is composed of about 30 peoples with interdisciplinary background ranging from engineering, physics, computer science and medical doctors dedicated to studying mechanisms underlying normal and pathological brain function, from development to ageing in human and preclinical mouse models.

IMIS has international outreach: >50 collaborative projects in the last 6 years with national and International University partners (e. g.: Basel U, Switzerland; Freiburg U, Germany; Patras U, Greece; Myology Institute, Paris; Neurospin, Paris;) and private companies (Siemens, Roche, Bayer, Piramal, Lilly, Genentech, Quintiles, Merck Serono). IMIS is also partner on NIH grants (PI Pr K Hauser VCU) and partners of Axilum Robotics, a spin-off company (first robot specifically designed for Transcranial Magnetic Stimulation (TMS) to assist Health Care Professionals.

Finally, IMIS is the main partner of the ICube Imaging platform; with extensive expertise in MR imaging and robotics, both clinical and preclinical. The infrastructure includes a 7T small animal MRI scanner (Bruker Biospec), sensitive coils to acquire the MR signal (Cryoprobe technology, Bruker, Germany), X-ray and Bioluminescence/fluorescence in-vivo scanners, as well as a mouse and rat facility; as well as a 3T – Siemens Human MRI system.

List of most relevant 5 publications

1. Degiorgis L, ...**Harsan LA**, Brain networks remodeling reflects Tau-related pathology prior to memory deficits in Thy-Tau22 mice, *Brain*, 2020, *Accepted*
2. Arefin TM, Mechling AE, Meirsmann AC, Bienert T, Hübner NS, Lee HL, Ben Hamida S, Ehrlich A, Roquet D, Hennig J, von Elverfeldt D, Kieffer BL, **Harsan LA**. Remodeling of Sensorimotor Brain Connectivity in Gpr88-Deficient Mice. *Brain Connect.* 2017 Oct;7(8):526-540.
3. Hübner N, Mechling AE, Lee HL, Reisert M, Bienert T, Hennig J, von Elverfeldt D, **Harsan LA**. The connectomics of brain demyelination: Functional and structural patterns in the cuprizone mouse model. *NeuroImage* 2017 Feb 1;146:1-18.
4. Mechling AE, Arefin T, Lee HL, Bienert T, Reisert M, Ben Hamida S, Darcq E, Ehrlich A, Gaveriaux-Ruff C, Parent MJ, Rosa-Neto P, Hennig J, von Elverfeldt D, Kieffer BL, **Harsan LA**. Deletion of the mu opioid receptor gene in mice reshapes the reward-aversion connectome. *Proc Natl Acad Sci U S A.* 2016 Oct 11;113(41):11603-11608.
5. **Harsan LA**, David C, Reisert M, Hennig J, D von Elverfeldt and Staiger J, “Mapping remodeling of thalamocortical projections in the living reeler mutant brain with diffusion tractography” – *Proc Natl Acad Sci U S A.* 2013 May 7;110(19):E1797-806.

L Harsan: Distinctions in International conferences representatives in the Neuroimaging / Neurosciences fields:

(ISMRM: International Society for Magnetic Resonance in Biology and Medicine)

- ISMRM –Toronto, 2015 : Summa cum laude award (2 awards: Abstracts 0046 et 1377)
- ISMRM –Toronto, 2015 : Magna cum laude award (2 awards: Abstracts: 3542 et 0408)
- ISMRM – Melbourne 2012: Abstract - Summa cum laude award
- ISMRM – Montreal 2011: 1-er prix (Section: Neuroimaging:Psychiatric & Animal Studies)
- Young researcher award: LBBW - Förderpreis 2009; “Albert-Ludwigs” University, Freiburg
- ISMRM – Toronto 2008 , 3-ème prix (Section: MRI in drug research)”
- Post-doctoral award Humboldt Foundation: Freiburg 2008-2010
- Neurex – Freiburg 2007, Best talk award
- ARSEP – Paris 2004: Best poster award

L Harsan: Coordinator PI/Partner -PI or collaborator for Funded Grants (last 5 years):

- 2020 - 2023: FRM (Fondation pour la recherche médicale) : Interdisciplinary project : FEMINAD ; Partner : 225 k€
- 2019 - 2021: IDEX Consolidator ”COIMAGINE”, Coordinator PI: 100 k€
- 2019 - 2024: Horizon 2020 EU Grant 848099, PAINFACT (2019 – 2024): PI Unistra L Harsan (Coordinator: C. Nielsen, Norway); 886 k€ for imaging at ICube
- 2017-2018: Fonds Paul Mandel for research in neurosciences, Univ. of Strasbourg: «Analysis of Brain Networks in Murine Models of Depression with Different Imaging Modalities». (9 months, 1 PhD student): PI, 23k€
- 2017 -2021: National Institutes of Health: NIH R01 DA044939 grant: «The HIV-opiate interactions in white matter pathology » Grant lead: prof. Kurt Hauser; Virginia Commonwealth University, USA: collab. 204 k€
- 2016 - 2020: National Institutes of Health (NIH-NIAAA #16658) grant renewal: (Coordinator: Prof. Brigitte Kieffer, McGill University, Canada; budget for 4 years); collaborator: