

Rik L.E.M. Ubaghs

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Bio

I am a neural engineer specialized in neurotechnology. My areas of expertise are biomedical imaging, medical technology, brain-machine interfaces, and data analysis.
In my work, I am mostly interested in bridging the gap between experimental (neuro)technology and practical applications in the medical domain.

Education

ETH Zurich, Zurich, Switzerland <i>Ph.D. Neurotechnology</i>	July 2017 - May 2023
University of Amsterdam, Amsterdam, the Netherlands <i>Research Master Brain and Cognitive Sciences, Cum Laude</i>	Sept 2014 - June 2016
Maastricht University, Maastricht, the Netherlands <i>Bachelor Psychology and Neuroscience, Cum Laude</i>	Sept 2011 - June 2014

Skills

Languages:	Dutch (Native), English (Fluent), German (Basic)
Programming:	Python, Matlab, Rust, R, SQL
Skills:	Data Science, Biomedical Imaging, Microscopy, Mechanical design

Research Positions

AragoLabs (@Inst. of Neuroinformatics, ETH Zurich, Zurich, Switzerland) <i>Co-founder</i> - Development of a miniaturized microscope for tumor visualization and classification during neurosurgery.	June 2023 - Current
Inst. of Neuroinformatics, ETH Zurich, Zurich, Switzerland <i>Ph.D. Candidate</i> - Development of a MRI compatible fluorescence microscope (full-cycle product design). - Design of a paradigm to combine microscopy and MR imaging methods in awake rodents. - Design of data pipelines for multi-modal data analysis.	July 2017 – June 2023
Center for Neuroengineering, Duke University, Durham, USA <i>Visiting Scientist</i> - Development of hybrid brain decoding methods in Non-human Primates.	Dec 2015 – Nov 2016
Swammerdam Institute for Life Sciences, Amsterdam, The Netherlands <i>Internship</i> - Experimental design for sensory integration in rodents. - Design of data analysis methods for high dimensional data.	Aug 2015 – Dec 2015
Spinoza Center for Neuroimaging, Amsterdam, The Netherlands <i>Junior Research Scientist</i> - MR operator. - Design and supervision of several large research projects.	Nov 2014 - Dec 2015

Industry Positions

Agora Technology, Maastricht, The Netherlands

Nov 2016 - Feb 2018

Founder

- Built data solutions that aimed to streamline/automate the workflow within medical facilities, especially focussing on surgical equipment.
 - Focused on logistics, and the creation, maintenance, and analysis of large-scale medical equipment databases using ML/DL.
 - Clients included Maastricht University Medical Center and Medtronic.
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Extracurricular Positions

Natural Movements, The Netherlands

March 2007 - May 2012

Co-Founder

- Natural Movements is a non-profit organization that aims to engage underprivileged youth in the local community through behavioral coaching and physical education.
 - We worked together with social service organisations to provide youth with any additional support they required.
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Publications

Research Papers:

- Simultaneous single-cell calcium imaging of neuronal population activity and brain-wide BOLD fMRI Ubaghs, R.L.E.M., Boehringer, R., Marks, M., Hesse, H.K., Yanik, M.F., Zerbi, V., Grewe, B.F., bioRxiv 2023.11.14.566368; doi: <https://doi.org/10.1101/2023.11.14.566368>

Conference Abstracts:

- Ubaghs, R.L.E.M., Böhringer, R., Marks, M., Yanik, M.F. and Grewe, B.F., The Effect of Somatostatin+ Interneurons on the Negative BOLD Response. Proc. Intl. Soc. Mag. Reson. Med. 29 (2021)
 - Ubaghs, R.L.E.M., Dermutz, H., Böhringer, R., Marks, M., Yanik, M.F. and Grewe, B.F., Shaping the BOLD signal through Excitatory and Inhibitory Interaction. Proc. Intl. Soc. Mag. Reson. Med. 28 (2020)
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Honors

Committees:

Educational Committee, IIS, University of Amsterdam	Sept 2014 - June 2015
Vice-President Student Council, FPN, Maastricht University	Sept 2012 - June 2013
Program Committee, FPN, Maastricht University	Sept 2012 - June 2013

Grants:

Hendrik Muller Memorial Foundation	2016
Bekker - La Bastide Memorial Foundation	2015
Vrijvrouwe van Renswoude Foundation	2015