Michael P. Notter

Data Scientist &
Neuroscientist

Contact

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Lausanne, Switzerland

Method Skills

Machine & Deep Learning
Signal Processing
Statistical Analysis
Data Presentation
Neuroimaging (MRI & EEG)

Computer Skills

Python, Shell, MATLAB
Linux, macOS, Windows
Git, Github, CircleCI, Travis
Docker, Singularity

Languages

German (native)
English (fluent)
French (fluent)

Interests

Programming
Designing visual art
R & D projects
Skill challenges (Kaggle)
Teaching

Find me also on

 miykael
 Linkedin
 miyka_el
 Publications
 Homepage

About me

I am a research scientist working at the intersection of machine learning, signal processing, neuroscience, and knowledge transfer. I have strong scientific, analytical, teaching, and interpersonal skills, and experience working on challenging projects, both as a team member and project leader, collaborating with stakeholders from academia and industry. My background is in programming, numerical analysis, and systems modeling, with particular interest in the medical field and computer vision. I enjoy working in a stimulating and vibrant environment and have a knack for quality, efficiency, and transparency. My passion for my work stems from a general curiosity and deep desire to understand complex systems, and the wish to keep up with the potential of artificial intelligence.

Professional Experience

04/2019 to present	**Data Science Course Developer & Instructor**	*EPFL, Lausanne*

Content director for That's AI, an informative online platform about Artificial Intelligence in three languages. Managing tasks involved interaction with marketing team, front-end developers, business customers, supervision of content creators, web designers, language translators and illustrators.

Course developer and instructor for the "Applied Data Science: Machine Learning" program at the EPFL Extension School. Work included advising participants and guiding their proof of concepts from numerous industries, optimization of company internal processes, development of new teaching tools, creation and execution of multiple AI workshops, hackathons, and conference talks, plus collaborating with academic and private sector partners to identify opportunities for data-driven solutions across multiple industries.

04/2014 to 04/2016 — **Research Collaborator in Neuroscience & Neuroimaging** — *CHUV, Lausanne*
Development, implementation and analysis of behavioral and neuroimaging experiments using eye-tracking, EEG and MRI. Technical support and training of collaborators and development of MRI, EEG and eye-tracking analysis software.

02/2013 to 11/2014 — **Research Assistant in Neuroscience & Neuroimaging** — *INAPIC, Zurich*
Development and maintenance of analysis software of behavioral, physiological & MRI data. Extensive support to research collaborators for data analysis.

01/2011 to 05/2011 — **Internship at Massachusetts Institute of Technology** — *MIT, Cambridge, USA*
Design and execution of experiments, technical support, teaching & implementation and maintenance of analysis software. The internship was extended for another month due to very satisfactory work.

Education

04/2016 to 07/2021 — **PhD in Neuroscience** — *University of Lausanne*
Thesis: Innovation and standardization of processing pipelines for functional MRI data analysis
Work: Development of multiple neuroimaging toolboxes to facilitate the processing and analysis of MRI, EEG and eye-tracking data, with a focus on human cognitive mechanisms, such as multisensory integration and rhythm perception. Planning and execution of multiple research studies, including the acquisition of various datasets, using novel measuring techniques. Analysis methods included classical statistical analysis, as well as machine learning approaches.

02/2012 to 07/2014 — **Master in Cognitive Psychology & Neuroscience** — *University of Zurich*
Thesis: Differences and similarities between brains of children with attention deficit hyperactivity disorder and children with autism spectrum disorder - An analysis of 700 anatomical MRI scans.
Lectures: Major in Psychology & minor in Neuroinformatics, covering neurobiology, cognitive psychology, neuroimaging methods, neural networks, models of computation & computational vision.

09/2007 to 02/2012 — **Bachelor of Science in Psychology** — *University of Zurich*
Thesis: On achieving satisfaction and subjective well-being. A review of intervention studies from positive psychology.
Lectures: Major in Psychology & minor in Neuroinformatics, covering psychology, statistics, neuroscience, informatics, biology, mathematics & AI.
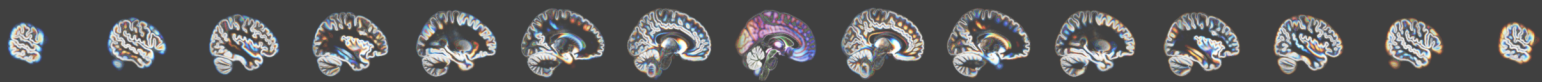
Publications

2021   **Notter, M.P.**, Herholz, P., Da Costa, S., Gulban, O.F., Isik, A.I., & Murray, M.M. (2021). fMRIflows: a consortium of fully automatic univariate and multivariate fMRI processing pipelines. *bioRxiv*. https://doi.org/10.1101/2021.03.23.436650

2020   Botvinik-Nezer, R., Holzmeister, F., Camerer, C. F., Dreber, A., Huber, J., Johannesson, M., ..., **Notter, M.P.**, ..., & Rieck, J. R. (2020). Variability in the analysis of a single neuroimaging dataset by many teams. *Nature, 582(7810)*, 84-88. https://doi.org/10.1038/s41586-020-2314-9

Zeugin, D., **Notter, M.P.**, Knebel, J.F., & Ionta, S. (2020). Temporo-parietal contribution to the mental representations of self/other face. *Brain and Cognition, 143, 105600*. https://doi.org/10.1016/j.bandc.2020.105600

Franceschiello, B., Di Sopra, L., Minier, A., Ionta, S., Zeugin, D., **Notter, M.P.**, ... & Murray, M.M. (2020). 3-Dimensional magnetic resonance imaging of the freely moving human eye. *Progress in Neurobiology, 194, 101885*. https://doi.org/10.1016/j.pneurobio.2020.101885

2019   **Notter, M.P.**, Gale, D., Herholz, P., Markello, R. D., Notter-Bielser, M.-L., & Whitaker, K. (2019). AtlasReader: A Python package to generate coordinate tables, region labels, and informative figures from statistical MRI images. *Journal of Open-Source Software, 4(34)*, 1257. https://doi.org/10.21105/joss.01257

Notter, M.P., Hanke, M., Murray, M.M., & Geiser, E. (2019). Encoding of Auditory Temporal Gestalt in the Human Brain. *Cerebral Cortex, 1*, 29, 2, 475–484. https://doi.org/10.1093/cercor/bhx328

Yarkoni, T., Markiewicz, C. J., de la Vega, A., Gorgolewski, K. J., Salo, T., Halchenko, Y. O., ..., **Notter, M.P.**, & Blair, R. (2019). PyBIDS: Python tools for BIDS datasets. *Journal of open-source software, 4(40)*. https://dx.doi.org/10.21105%2Fjoss.01294

Franceschiello, B., Di Sopra, L., Ionta, S., Zeugin, D., **Notter, M.**, Bastiaansen, J. A., ... & Murray, M. (2019). Motion-Resolved 3D Magnetic Resonance Imaging Of The Human Eye. *Investigative Ophthalmology & Visual Science, 60(9)*, 6112-6112. https://iovs.arvojournals.org/article.aspx?articleid=2746110

2017   Crottaz-Herbette, S., Fornari, E., **Notter, M.P.**, Bindschaedler, C., Manzoni, L., & Clarke, S. (2017). Reshaping the brain after stroke: the effect of prismatic adaptation in patients with right brain damage. *Neuropsychologia*, 104, 54-63. https://doi.org/10.1016/j.neuropsychologia.2017.08.005

Zeugin, D., Arfa, N., **Notter, M.**, Murray, M.M., & Ionta, S. (2017). Implicit self-other discrimination affects the interplay between multisensory affordances of mental representations of faces. *Behavioural brain research*, 333, 282-285. https://doi.org/10.1016/j.bbr.2017.06.044

2016   Gorgolewski, K.J., Esteban, O., Ziegler, E., **Notter, M.P.**, ... Ghosh, S. (2016). Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in Python. *Zenodo*. https://doi.org/10.5281/zenodo.596855

2012   Geiser, E., **Notter, M**, & Gabrieli, J.D.E. (2012). A corticostriatal neural system enhances auditory perception through temporal context processing. *The Journal of Neuroscience, 32(18)*, 6177-6182. https://doi.org/10.1523/JNEUROSCI.5153-11.2012

Professional Activities & Teaching

2020   MRI analysis in Python using Nipype, Nilearn and more (2nd version)   *University of Cambridge, UK*
        https://github.com/miykael/workshop_pybrain   *2-day workshop*
        Second installment of the 2018 workshop at Cambridge due to great success and high demand.

        EPFL Extension School Workshop - Machine Learning   *EPFL, Switzerland*
        https://appliedmldays.org/events/amld-epfl-2020   *3.5-hour talk*
        Hands-on experience of Machine Learning and Deep Learning methods by exploring different AI use cases.

        Nipype and beyond!   *University of Alabama at Birmingham, USA*
        https://github.com/miykael/journal_club_uab   *1-hour talk*
        Presentation of Nipype and other neuroimaging toolboxes, during UAB's Neuroimaging Journal Club.

2019   ITU Talks: AI for Everyone   *ITU Geneva, Switzerland*
        https://www.itu.int/en/ITU-D/bdt-director/Pages/Speeches.aspx?ItemID=212   *3-hour talk*
        Informative talk held in front of 300 UN associates from around the world, about what AI is, how it is applied in academia and the private sector, and how it will change our private, professional and social lives.

2018   Neuroimaging in Python (1st version)   *University of Cambridge, UK*
        https://github.com/miykael/workshop_cambridge   *2-day workshop*
        Workshop given at Cognition & Brain Sciences Unit covering many different neuroimaging topics, such as task-fMRI, diffusion imaging, functional connectivity analysis, machine learning, convoluted neural networks & Nipype.

Open and Reproducible Neuroscience using Python (2ⁿᵈ version)   *Max Planck Institute Frankfurt, Germany*
https://openreproneuro2018frankfurt.github.io   *3-day workshop*
Focused on open and reproducible neuroscience using python. Teaching covered scientific toolboxes such as Nipype, Docker, Jupyter Notebook, BIDS, OpenNeuro, DataLad, Nibabel, Nilearn, and PyMVPA.

Open and Reproducible Neuroscience using Python (1ˢᵗ version)   *University of Marburg, Germany*
https://openreproneuro2018marburg.github.io   *3-day workshop*
Workshop covered the same content as at Max Planck Institute, Frankfurt, Germany in May 2018.

Brainhack Computing: Hands on in Python   *Sardar Patel Institute of Technology in Mumbai, India*
https://github.com/miykael/workshop_mumbai   *5-hour webinar*
Webinar given during Brainhack event organized by Prof. Preeti Jani, sponsored by IEEE, covering basics of neuroimaging data analysis using python toolboxes such as Nipype, Nilearn & Keras.

Neuroimaging with Nipype - Where are we and where are we going?   *University Magdeburg (OVGU), Germany*
https://brainhack.psychoinformatics.de   *1-hour talk*
Nipype Tutorial given during the Brainhack Global 2018.

2017   **Nipype Tutorial: How to analyze your MRI data in an easy and flexible way**   *University of Zurich, Switzerland*
https://dynage.github.io/brainhack-zh   *2-hour talk*
Nipype Tutorial given during the Brainhack Global 2017.

Nipype Tutorial   *Global (used in +150 countries)*
https://miykael.github.io/nipype_tutorial   *autodidactic teaching tool*
New and improved user's guide that uses Docker and Jupyter Notebooks for an interactive introduction to Nipype and related neuroimaging software. The homepage is visited more than 2'500 times per month.

2011   **Nipype Beginner's Guide**   *Global (used in +148 countries)*
http://miykael.github.io/nipype-beginner-s-guide   *autodidactic teaching tool*
First comprehensive guide to Nipype with more than 1'500 visits per month.

Awards & Fellowships
2018   Invitation to 3-day code sprint at Massachusetts Institute of Technology (MIT).
2018   SSN Travel Fellowships for Student & Postdoc Members for 1'500.00 CHF.
2018   Chosen from 400 applicants to be one of 60 participants at the Neurohackademy 2018 in Seattle, a two-week hands-on summer school in neuroimaging and data science.

References

Marcel Salathé   Professor at EPFL and director of the Lab of Digital Epidemiology (marcel.salathe@epfl.ch)

Arnaud Miribel   Data science freelancer, former coworker, now at Streamlit

Mara Pasquali   Senior Marketing and Communications Executive with 18 years of experience in the Swiss market

Eveline Geiser   Senior R&D Specialist at Nestlé, former principal investigator at CHUV

Ralph Bielser   Former Vice-President IS Strategy & Planning at Philip Morris International

Satrajit Ghosh   Principal research scientist at MIT & assistant professor at Harvard Medical School (satra@mit.edu)