

# Michael P. Notter



## About me

I'm a Machine Learning Engineer & Neuroscientist, fascinated by hidden patterns. At the intersection of machine learning, neuroimaging, computer vision, AR/VR, and vital signs, I explore intricate signal landscapes and craft innovative solutions. As a technical ML lead and autonomous expert, I steer projects to technical milestones with precision and adaptability, minimizing computational and energy costs. My passion stems from a deep desire to understand complex systems, and to keep up with the potential and challenges of AI. I've shared knowledge through talks at prestigious institutions and hold patents in machine learning and optical solutions. Thriving in stimulating environments, I'm always eager to push what's possible.

## Professional Experience

- 07/2023 to present **Senior Machine Learning Staff Engineer** *ams OSRAM, Martigny*  
With my expanded responsibilities, I take on technical leadership in machine learning projects, including vital signs monitoring, eye tracking, AR/VR, and spatial computing. I concentrate on crafting elegant and innovative AI solutions, minimizing computational, memory, and energy costs, and steering the development of highly efficient AI algorithms. My role involves driving projects to their required technical milestones with precision, while creatively integrating machine learning with various sensor technologies.
- 03/2022 to 06/2023 **Machine Learning Staff Engineer** *ams OSRAM, Martigny*  
Specializing in sensor fusion, optical solutions, and signal processing, I utilize vertical-cavity surface-emitting lasers (VCSELs) and spectroscopy photodiodes to develop advanced signal processing and machine learning techniques that enhance performance in spatial and biomedical sensing. My focus is on achieving real-time functionality in vital signs monitoring and pioneering innovative technologies like self-mixing interferometry (SMI), aiming for high-accuracy, low-power solutions at remarkable speeds.
- 04/2019 to 03/2022 **Data Scientist** *EPFL, Lausanne*  
As **Content Director** for [That's AI](#), I managed an informative online platform about AI across three languages, coordinating with marketing, front-end developers, business customers and supervised content creators, designers, and translators. As a **Course Developer and Instructor** for the "Applied Data Science: Machine Learning" program at the EPFL Extension School, I guided 100s of participants through proof-of-concept projects from various industries, optimized numerous company internal processes, and developed new teaching tools. I created and executed AI workshops, hackathons, conference talks, and collaborated with academic and private sector partners to identify opportunities for data-driven solutions across multiple industries.
- 04/2014 to 04/2016 **Research Scientist** *CHUV, Lausanne*  
Development, execution, and analysis of +8 neuroimaging experiments using MRI, EEG, and eye-tracking, plus general software development and teaching.
- 02/2013 to 03/2014 **Research Assistant** *INAPIC, Zürich*  
Development and maintenance of analysis software for behavioral, physiological & MRI data. Extensive support to research collaborators for data analysis.
- 01/2011 to 05/2011 **Internship at MIT** *MIT, Cambridge, MA, USA*  
Design and execution of experiments, development of neuroimaging software, technical support, and teaching. 1-month extension 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 8 neuroimaging toolboxes to facilitate the processing and analysis of MRI, EEG, and eye-tracking data, focusing on human cognitive mechanisms such as multisensory integration and rhythm perception. Planning and execution of 7 research studies, including acquiring various datasets using novel measuring techniques. Analysis methods included classical statistical analysis, as well as machine learning approaches.

## Machine Learning Engineer & Neuroscientist

### Contact

[michaelnotter@hotmail.com](mailto:michaelnotter@hotmail.com)

Tel.: +41 (0)797864717

Lausanne, Switzerland

Date of birth: 24. April 1987

### Languages

German (native)

English (fluent)

French (fluent)

### Method Skills

Machine and deep learning

Signal processing

Computer vision

Neuroimaging (MRI & EEG)

Biomedical & optical solutions

### Computer Skills

Python, Shell, R, MATLAB

Numpy, OpenCV, dlib

TensorFlow, PyTorch, Scikit

Git(hub/-lab), CircleCI, Travis

Docker, Singularity

### Interests

Programming

R & D projects

Skill challenges ([Kaggle](#))

Designing visual art

Knowledge transfer

Open Source

### Find me also on

 [miykael.github.io](https://github.com/miykael)

 [miykael](https://twitter.com/miykael)

 [Linkedin](#)

 [miyka\\_el](https://twitter.com/miyka_el)

 [Publications](#)

# Michael P. Notter

- 02/2012 to 07/2014 **MSc in Neuroscience; minor in Neuroinformatics** *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** in neuroinformatics, neurobiology, cognitive psychology, neuroimaging methods, neural networks, models of computation & computational vision.
- 09/2007 to 02/2012 **BSc in Psychology; minor in Neuroinformatics** *University of Zurich*  
**Thesis:** Achieving satisfaction and subjective well-being. A review of intervention studies from positive psychology. **Lectures** in psychology, neuroinformatics, statistics, neuroscience, informatics, biology, mathematics & AI.

## Selected Publications

- 2023 **Notter, M.P.**, Herholz, P., Da Costa, S., Gulban, O.F., Isik, A.I., Gaglianese, A., & Murray, M.M. (2023). fMRIflows: a consortium of fully automatic univariate and multivariate fMRI processing pipelines. *Brain Topography*, 36(2), 172-191. <https://doi.org/10.1007/s10548-022-00935-8>
- 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>
- 2019 **Notter, M.P.**, Gale, D., Herholz, P., Markello, R. D., Notter-Bielsler, 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>
- 2017 Crottaz-Herbette, S., Fornari, E., **Notter, M.P.**, Bindschadler, 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>
- 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

**Supervisor for the EXTS course "Applied Data Science: Machine Learning"** at EPFL, Switzerland, from 2019 to 2022.  
**Teaching:** Empowered over 1000 learners from various backgrounds, covering the full data science pipeline with an equal focus on all stages including data preparation, exploration, modeling, post-analysis investigation, results visualization and communication. **Mentoring:** Guided 100s of proof-of-concept projects from industry and research, across diverse sectors including finance, medicine, consumer service, energy, insurance, marketing, meteorology, robotics, transportation, and manufacturing, tailoring guidance to meet the unique needs of each domain.

### Workshops and Talks

- 2020 Conducted a comprehensive **2-day** MRI analysis workshop at the [University of Cambridge, UK](#) (2nd invitation), held a **3.5-hour** interactive hands-on Machine Learning talk to 400 participants at the [SwissTech Convention Center, EPFL, Switzerland](#), and gave a **1-hour** talk at the [University of Alabama at Birmingham, USA](#) on neuroimaging toolboxes.
- 2019 Delivered a **3-hour** talk to 300 UN associates from around the world, at [ITU Geneva, Switzerland](#) 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 Led multiple workshops and talks focusing on neuroimaging, including a **2-day** workshop at [University of Cambridge, UK](#), a **3-day** workshop at [Max Planck Institute Frankfurt, Germany](#), a **3-day** workshop at [University of Marburg, Germany](#), and a **5-hour** webinar at [Sardar Patel Institute of Technology in Mumbai, India](#).
- 2017 Presented a **2-hour** tutorial at [University of Zurich, Switzerland](#) on MRI data analysis.

### Autodidactic Teaching Tools

- 2017 Updated the user's guide to a more [interactive Nipype Tutorial](#) using Docker, Jupyter Notebooks, and CircleCI. This has attracted over 2,500 visitors per month from +150 countries.
- 2011 Launched the [Nipype Beginner's Guide](#), the first comprehensive guide to Nipype, drawing more than 1,500 monthly visitors from +148 countries.

## References

- Hugues Salamin** ML research team lead in the innovation office at **ams OSRAM** ([hugues.salamin@ams-osram.com](mailto:hugues.salamin@ams-osram.com))
- Marcel Salathé** Professor at EPFL and director of the Lab of Digital Epidemiology, former academic director of the EPFL Extension School ([marcel.salathe@epfl.ch](mailto:marcel.salathe@epfl.ch))
- Evelin Geiser** Science journalist at Neue Zürcher Zeitung (NZZ); former senior R&D specialist at Nestlé; principal investigator at CHUV and research affiliate at MIT, Cambridge (USA) ([eveline.geiser@unil.ch](mailto:eveline.geiser@unil.ch))