Michael P. Notter

Research Scientist in computer vision, AI and signal processing

Contact

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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)
Statistical analysis
Data presentation

Computer Skills

Python, Shell, R, MATLAB
Numpy, OpenCV, dlib
Scikit, TensorFlow, PyTorch
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
miykael
Linkedin
miyka_el
Publications

About me

I am a research scientist working at the intersection of machine learning, signal processing, and computer vision. I have strong scientific, analytical, 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 computer vision and neuroscience. I enjoy working in stimulating and vibrant environments and have a knack for quality, efficiency, and transparency. My passion 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

03/2022 to present — **Machine Learning Staff Engineer** — *ams OSRAM, Martigny*
As a **researcher** in the AI and Machine Learning team in the Innovation Office of ams OSRAM I mostly work on computer vision and signal processing projects. Using data from vertical-cavity surface-emitting lasers (VCSELs) and combining it with advanced signal processing and machine learning routines, I help to improve the performance, expand the capabilities, and reduce the resource requirements of next-generation 3D sensing applications. I strive to improve the real-time capabilities of direct time-of-flight (dToF) and next-generation sensor technologies, such as self-mixing interferometry (SMI), to provide low-power, high measurement accuracy sensor technologies at very high speed.

04/2019 to 03/2022 — **Data Scientist** — *EPFL, Lausanne*
My manager tasks as **content director** for That's AI involved the coordination with marketing, front-end developers, business customers, and included the supervision of content creators, web designers, language translators and illustrators.
As a **course developer and instructor** for the "Applied Data Science: Machine Learning" program at the EPFL Extension School I personally mentored 105 proof of concepts projects from numerous industries, optimized company internal processes, developed new teaching tools, created and gave multiple AI workshops, and 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 studies using MRI, EEG and eye-tracking, plus general software development and teaching.

01/2011 to 05/2011 — **Internship at MIT** — *MIT, Cambridge, MA, USA*
Design and execution of experiments, development of neuroimaging software, technical support & 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, with a focus on human cognitive mechanisms, such as multisensory integration and rhythm perception. Planning and execution of 7 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 — **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; **Courses** in neuroinformatics, neurobiology, cognitive psychology, neuroimaging methods, neural networks, models of computation and computational vision.

09/2007 to 02/2012 — **BSc in Psychology; minor in Neuroinformatics** — *University of Zurich*
Thesis: On achieving satisfaction and subjective well-being. A review of intervention studies from positive psychology; **Courses** in psychology, neuroinformatics, statistics, neuroscience, informatics, biology, mathematics and AI.

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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

Gorgolewski, K. J., Ghosh, S., **Notter, M.**, Varoquaux, G., Waskom, M., & Ziegler, E. (2012). Nipype 2012: more packages, reusable workflows and reproducible science. In 18th Annual OHBM Meeting, http://edin.ac/1KNHL8k

Awards & Fellowships

2020 Solo gold medal achievement (11th place out of 1047 teams) in Kaggle's TReNDS Neuroimaging challenge.
2018 Travel Fellowship to 3-day code sprint at MIT, focused on neuroimaging toolbox Nipype and dataflow engine Pydra.
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, former academic director of the EPFL Extension School (marcel.salathe@epfl.ch)

Arnaud Miribel — Data scientist **at Streamlit**, co-founder of byrd valley and former coworker (arnaudmiribel@gmail.com)

Mara Pasquali — Senior Marketing and Communications Executive with 18 years of experience in the Swiss market (mara@anyes.ch)

Evelin Geiser — Senior R&D Specialist at **Nestlé**, former principal investigator at CHUV and research affiliate at Massachusetts Institute of Technology, Cambridge (MIT) (eveline.geiser@unil.ch)

Ralph Bielser — Former Vice-President IS Strategy & Planning at **Philip Morris International** (ralph.bielser@gmail.com)

Professional Activities & Teaching

2019 to 2022 **Supervisor for the EXTS course "Applied Data Science: Machine Learning"** — *EPFL, Switzerland* — *daily*
https://www.extensionschool.ch
Teaching applied data science skills to more than 1000 students, covering the full data science pipeline of data preparation, exploration, modeling, post-analysis investigation, results visualization and communication.
Mentoring of 100s of proof-of-concept projects from industry and research, covering computer vision, consumer service, energy, finance, geography, insurance, predictive maintenance, manufacturing, marketing, medicine, meteorology, music, NLP, recommender systems, robotics, sales, service optimization, system control and transportation.

2020 **MRI analysis in Python using Nipype, Nilearn and more (2nd version)** — *University of Cambridge, UK* — *2-day workshop*
https://github.com/miykael/workshop_pybrain

EPFL Extension School Workshop - Machine Learning — *EPFL, Switzerland* — *3.5-hour talk*
https://appliedmldays.org/events/amld-epfl-2020

Nipype and beyond! — *University of Alabama at Birmingham, USA* — *1-hour talk*
https://github.com/miykael/journal_club_uab

2019 **ITU Talks: AI for Everyone** — *ITU Geneva, Switzerland* — *3-hour talk*
https://www.itu.int/en/ITU-D/bdt-director/Pages/Speeches.aspx?ItemID=212
Informative talk held in front of 300 UN associates from around the world

2018 **Neuroimaging in Python (1st version)** — *University of Cambridge, UK* — *2-day workshop*
https://github.com/miykael/workshop_cambridge

Open and Reproducible Neuroscience using Python (2nd version) — *Max Planck Institute Frankfurt, Germany* — *3-day workshop*
https://openreproneuro2018frankfurt.github.io

Open and Reproducible Neuroscience using Python (1st version) — *University of Marburg, Germany* — *3-day workshop*
https://openreproneuro2018marburg.github.io

Brainhack Computing: Hands on in Python — *Sardar Patel Institute of Technology in Mumbai, India* — *5-hour webinar*
https://github.com/miykael/workshop_mumbai

Neuroimaging with Nipype - Where are we and where are we going? — *University Magdeburg (OVGU), Germany* — *1-hour talk*
https://brainhack.psychoinformatics.de

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

+5 years **Nipype Tutorial** — *Global* — *autodidactic teaching tool*
https://miykael.github.io/nipype_tutorial

+11 years **Nipype Beginner's Guide** — *Global* — *autodidactic teaching tool*
http://miykael.github.io/nipype-beginner-s-guide
First comprehensive user's guide to Nipype, attracting more than 1'500 visitors per month from +150 countries.