

Nikoloz Sirmipilatze

MD PHD, POSTDOCTORAL RESEARCHER

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Education

German Primate Center - Functional Imaging Lab

PHD IN NEUROIMAGING

- *Thesis title:* Functional imaging of the anesthetized brain in primates and rodents
- *Supervisor:* Prof. Dr. Susann Boretius
- *Final grade:* Summa cum laude

Göttingen, Germany

May 2017 - Sep. 2021

Georg-August University of Göttingen - IMPRS for Neurosciences

MSC IN NEUROSCIENCE

- *Thesis title:* The temporal stability of BOLD fMRI measurements in medetomidine-anesthetized rats
- *Supervisor:* Prof. Dr. Susann Boretius
- *Final grade:* excellent 1.1 (1.0 down to 5.0)

Göttingen, Germany

Sep. 2015 - Apr. 2017

Aristotle University of Thessaloniki

DOCTOR OF MEDICINE (MD)

- *Final grade:* excellent 9.45/10, top of the class of 2015 (valedictorian)

Thessaloniki, Greece

Oct. 2009 - Jul. 2015

Advanced Courses & Workshops

Sep. 2019 **Brainhack Comparative MRI**, PRIME-DE Global Collaboration Workshop

London, UK

Feb. 2018 **Introduction to Data Science with python**, GGNB graduate school

Göttingen, Germany

May 2017 **Regression Modeling in R**, Leibniz Science Campus Primate Cognition

Göttingen, Germany

Nov. 2016 **Laboratory Animal Science Course on Primates**, European Primate Network (EUPRIM-NET)

Göttingen, Germany

Oct. 2016 **Laboratory Animal Science (FELASA Category B)**, Central Animal Facility, University Medical Center

Göttingen, Germany

Teaching

2018-20 **Supervision of 1 MSc student and 2 interns**, Functional Imaging Lab, German Primate Center

Germany

2017-19 **TA for Introduction to MRI/fMRI**, IMPRS for Neurosciences MSc Program

Germany

2013 **Community TA for Medical Neuroscience**, Online course offered by Duke University

www.coursera.org

2011 **TA for Neuroanatomy**, Medical School, Aristotle University of Thessaloniki

Greece

Stipends & Awards

2022 **Otto Creutzfeldt PhD Award**, International Max Planck Research School for Neurosciences

Göttingen, Germany

2022 **Best PhD Thesis Award 2021**, German Primate Center

Göttingen, Germany

2019 **Magna cum Laude Merit Award & Educational Stipend**, 27th Annual Meeting of the ISMRM

Montreal, Canada

2015 **Full MSc Student Scholarship**, German Academic Exchange Service (DAAD)

Germany

2010 **Undergraduate distinction**, Yearly Stipend from the State Scholarships Foundation of Greece (IKY)

Greece

Community Roles

PRIME-RE (PRIMatE Resource Exchange)

MAINTAINER AND CONTRIBUTOR

Sep. 2019 - present

- Open data and resources for non-human primate neuroimaging: prime-re.github.io
- Member of the core team that conceived the idea and built the website

Neurizons Conference

ORGANIZER

2017 - 2020

- Biennial student-organized neuroscience conference: neurizons.uni-goettingen.de
- Was responsible for graphic design in 2018 and led the migration to an online format in 2020

Skills

MRI	acquisition (Siemens 3T, Bruker 9.4T) & analysis (FSL, ANTS, Freesurfer, AFNI, nipy, nilearn)
Optical	<i>in vivo</i> 2-photon calcium imaging & analysis (suite2p)
Coding	Python, R, Bash, git, TeX
Animals	rodent handling, anesthesia, surgery, stereotaxic injections
Languages	Greek (native), Georgian (native), English (fluent), German (advanced), Russian (intermediate)

Research Output

PEER-REVIEWED PUBLICATIONS

1. **Sirmpilatze**, N., Mylius, J., Ortiz-Rios, M., Baudewig, J., Paasonen, J., Golkowski, D., Ranft, A., Ilg, R., Gröhn, O. & Boretius, S. Spatial signatures of anesthesia-induced burst-suppression differ between primates and rodents. *eLife* **11**, e74813. doi:[10.7554/eLife.74813](https://doi.org/10.7554/eLife.74813) (2022).
2. **Sirmpilatze**, N., Baudewig, J. & Boretius, S. Temporal stability of fMRI in medetomidine-anesthetized rats. *Scientific Reports* **9**, 16673. doi:[10.1038/s41598-019-53144-y](https://doi.org/10.1038/s41598-019-53144-y) (2019).
3. Messinger, A., **Sirmpilatze**, N., Heuer, K., Loh, K. K., Mars, R. B., Sein, J., Xu, T., Glen, D., Jung, B., Seidlitz, J., Taylor, P., Toro, R., Garza-Villarreal, E. A., Sponheim, C., Wang, X., Benn, R. A., Cagna, B., Dadarwal, R., Evrard, H. C., Garcia-Saldivar, P., Giavasis, S., Hartig, R., Lepage, C., Liu, C., Majka, P., Merchant, H., Milham, M. P., Rosa, M. G., Tasserie, J., Uhrig, L., Margulies, D. S. & Klink, P. C. A collaborative resource platform for non-human primate neuroimaging. *NeuroImage* **226**, 117519. doi:[10.1016/j.neuroimage.2020.117519](https://doi.org/10.1016/j.neuroimage.2020.117519) (2021).
4. Hafner, G., Guy, J., Witte, M., Truschow, P., Rüppel, A., **Sirmpilatze**, N., Dadarwal, R., Boretius, S. & Staiger, J. F. Increased Callosal Connectivity in Reeler Mice Revealed by Brain-Wide Input Mapping of VIP Neurons in Barrel Cortex. *Cerebral Cortex*. bhaa280. doi:[10.1093/cercor/bhaa280](https://doi.org/10.1093/cercor/bhaa280) (2020).
5. Lohrberg, M., Winkler, A., Franz, J., van der Meer, F., Ruhwedel, T., **Sirmpilatze**, N., Dadarwal, R., Handwerker, R., Esser, D., Wiegand, K., Hagel, C., Gocht, A., König, F. B., Boretius, S., Möbius, W., Stadelmann, C. & Barrantes-Freer, A. Lack of astrocytes hinders parenchymal oligodendrocyte precursor cells from reaching a myelinating state in osmolyte-induced demyelination. *Acta Neuropathologica Communications* **8**, 224. doi:[10.1186/s40478-020-01105-2](https://doi.org/10.1186/s40478-020-01105-2) (2020).

CONSORTIUM PUBLICATIONS

1. Grandjean, J. *et al.* StandardRat: A multi-center consensus protocol to enhance functional connectivity specificity in the rat brain. *bioRxiv*. doi:[10.1101/2022.04.27.489658](https://doi.org/10.1101/2022.04.27.489658) (2022).
2. Gau, R. *et al.* Brainhack: Developing a culture of open, inclusive, community-driven neuroscience. *Neuron* **109**, 1769–1775. doi:[10.1016/j.neuron.2021.04.001](https://doi.org/10.1016/j.neuron.2021.04.001) (2021).
3. Milham, M. *et al.* Toward next-generation primate neuroscience: A collaboration-based strategic plan for integrative neuroimaging. *en. Neuron*. doi:[10.1016/j.neuron.2021.10.015](https://doi.org/10.1016/j.neuron.2021.10.015) (2021).
4. Milham, M. *et al.* Accelerating the Evolution of Nonhuman Primate Neuroimaging. *Neuron* **105**, 600–603. doi:[10.1016/j.neuron.2019.12.023](https://doi.org/10.1016/j.neuron.2019.12.023) (2020).

CONFERENCE CONTRIBUTIONS

1. **Sirmpilatze**, N., Baudewig, J., Mylius, J., Golkowski, D., Ranft, A., Ilg, R., Paasonen, J., Gröhn, O. & Boretius, S. *fMRI mapping of anesthesia-induced burst suppression across multiple mammalian species in 15th European Molecular Imaging Meeting (virtual)*. **Talk** (2020).
2. **Sirmpilatze**, N., Baudewig, J., Mylius, J., Golkowski, D., Ranft, A., Ilg, R. & Boretius, S. *Using BOLD fMRI to map anesthesia-induced burst suppression in humans and non-human primates in 27th Annual Meeting of the International Society for Magnetic Resonance in Medicine*. **Talk** (2019).
3. **Sirmpilatze**, N., Baudewig, J. & Boretius, S. *Are fMRI measurements in medetomidine-anesthetized rats temporally stable? in 27th Annual Meeting of the International Society for Magnetic Resonance in Medicine*. **Poster** (2019).
4. **Sirmpilatze**, N., Baudewig, J., Kötz, K. & Boretius, S. *Optimizing medetomidine anesthesia for fMRI in rats in 11th Forum of Neuroscience, Federation of European Neuroscience Societies*. **Poster** (2018).
5. **Sirmpilatze**, N., Baudewig, J., Kötz, K. & Boretius, S. *The temporal stability of BOLD fMRI measurements in medetomidine anesthetized rats in 34th Annual Meeting of the European Society for Magnetic Resonance in Medicine and Biology*. **Poster** (2017).

OPEN DATASETS

1. **Sirmpilatze**, N., Mylius, J., Paasonen, J., Gröhn, O. & Boretius, S. *Functional MRI data from isoflurane-anesthetized macaques, marmosets, and rats* (Zenodo, 2021). doi:[10.5281/zenodo.5565305](https://doi.org/10.5281/zenodo.5565305).
2. **Sirmpilatze**, N. & Klink, P. C. *RheMAP: Non-linear warps between common rhesus macaque brain templates* (Zenodo, 2020). doi:[10.5281/zenodo.3668509](https://doi.org/10.5281/zenodo.3668509).
3. **Sirmpilatze**, N., Baudewig, J. & Boretius, S. *Temporal stability of fMRI in medetomidine-anesthetized rats* (OpenNeuro, 2019). doi:[10.18112/openneuro.ds001981.v1.0.3](https://doi.org/10.18112/openneuro.ds001981.v1.0.3).

OPEN CODE

1. **Sirmpilatze**, N. *niksirbi/pcarpet* 2021. doi:[10.5281/zenodo.5545695](https://doi.org/10.5281/zenodo.5545695).
2. Klink, P. C. & **Sirmpilatze**, N. *PRIME-RE/RheMAP* 2020. doi:[10.5281/zenodo.3673081](https://doi.org/10.5281/zenodo.3673081).

INVITED TALKS

1. *fMRI signatures of deep anesthesia in primates and rodents* in Douglas Research Center CIC Seminar Series (2021).