

# Nikoloz Sirmipilatz

PHD STUDENT

Deutsches Primatenzentrum GmbH, Kellnerweg 4, 37077, Göttingen, Germany

✉ NSirmipilatz@d pz.eu | 🏠 www.n sirmipilatz.e com/ | 📷 niksirbi | 🐦 @niksirbi | 🎓 Nikoloz Sirmipilatz

## Research Interest

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My research focuses on the effects of anesthesia on brain function - a topic that I explore with functional Magnetic Resonance Imaging (fMRI). I collect and analyze neuroimaging data from multiple mammalian species, including humans, non-human primates and rodents. I am particularly interested in what sorts of activities arise in the brain across various depths of anesthesia, either spontaneously or as a reaction to sensory stimuli.

## Education

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### German Primate Center - Functional Imaging Lab

Göttingen, Germany

PHD IN NEUROIMAGING

2017 - present

- *Working thesis title:* fMRI mapping of anesthesia-induced burst suppression across multiple species
- *Advisor:* Prof. Dr. Susann Boretius

### Georg-August University of Göttingen - IMPRS for Neurosciences

Göttingen, Germany

MSC IN NEUROSCIENCE

2015 - 2017

- *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)

### Aristotle University of Thessaloniki

Thessaloniki, Greece

DOCTOR OF MEDICINE (MD)

Oct. 2009 - Jul. 2015

- *Final grade:* excellent 9.43/10 (valedictorian)

## Teaching Experience

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### Teaching Assistant for Introduction to MRI/fMRI

Göttingen, Germany

IMPRS FOR NEUROSCIENCES MSc PROGRAM

2017 - 2019

- Gave tutorials and hands-on method courses of fMRI acquisition and analysis
- Workload: approx. 1 week per year for 3 years

### Supervisor for Master Student

Göttingen, Germany

IMPRS FOR NEUROSCIENCES MSc PROGRAM

Oct. 2018 - Mar. 2019

- *Dmytro Nesterenko:* Resting state connectivity and negative BOLD responses

### Supervisor for Lab Rotations

Göttingen, Germany

IMPRS FOR NEUROSCIENCES MSc PROGRAM

2019 - 2020

- *Hanna Dubrovskaya:* Ipsilateral negative BOLD response during the motor task in the HCP dataset
- *Anna Liashenko:* Changes in resting state functional connectivity after the neurofeedback training of anterior midcingulate cortex (aMCC)
- Duration of each rotation: 8 weeks

### Community Teaching Assistant for Medical Neuroscience

Online

MOOC OFFERED BY DUKE UNIVERSITY THROUGH WWW.COURSERA.ORG

Jan. - Mar. 2013

- Monitored student forums and answered questions

### Teaching Assistant for Neuroanatomy

Thessaloniki, Greece

LABORATORY OF DESCRIPTIVE ANATOMY, ARISTOTLE UNIVERSITY MEDICAL SCHOOL

Feb. - May 2011

- Assisted during practical course on brain dissection

## Extracurricular Activities

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### Brainhack Comparative MRI

PARTICIPANT

- Gained experience with collaborative coding projects

London, UK

Sep. 2019

### Neurizons Conference

ORGANIZER

- Neurizons is a biennial neuroscience conference organized by students
- Was part of the organizing committee from 2017 to 2020
- Was responsible for graphic design in 2018 and oversaw the migration to a virtual format in 2020

Göttingen, Germany

2017 - 2020

### Introduction to Data Science

PARTICIPANT

- 1-week course organized by the *GGNB Graduate School*
- Gained experience with the scientific python ecosystem (numpy, scipy, pandas, matplotlib, scikit-learn)

Göttingen, Germany

Feb. 2018

### Regression Modelling

PARTICIPANT

- 1-week course organized by the *Leibniz Science Campus Primate Cognition*
- Learned about building regression models with R

Göttingen, Germany

May 2017

### Laboratory Animal Science Course on Primates

PARTICIPANT

- E-learning module followed by 1-week on-site course
- Organized by the European Primate Network (EUPRIM-Net)

Göttingen, Germany

Nov. 2016

### Laboratory Animal Science

PARTICIPANT

- 20-hours theoretical module followed by 1-week practical course
- Organized by the Central Animal Facility, University Medical Center Göttingen
- According to the recommendations of FELASA (Category B)

Göttingen, Germany

Mar. - Oct. 2016

## Stipends & Awards

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

Montreal, Canada

2017 **Student Support Program**, 34<sup>th</sup> Annual Meeting of the ESMRMB

Barcelona, Spain

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

## Skills

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**MRI acquisition** Familiar with **Bruker** (Paravision) and Siemens Prisma platforms

**MRI analysis** **FSL, ANTS, nipyne**, Freesurfer, AFNI, BrainVoyager, Nilearn

**Programming** **Python, R, Bash, git,  $\LaTeX$**

**Animals** Rodent handling, anesthesia, surgery, stereotaxic injections

**Languages** **Greek, Georgian, English**, German, Russian

# Research Output

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## PEER-REVIEWED PUBLICATIONS

1. **Sirmpilatze**, N., Baudewig, J. & Boretius, S. Temporal stability of fMRI in medetomidine-anesthetized rats. *Scientific Reports* **9**, 16673. ISSN: 2045-2322 (Nov. 2019).
2. Hafner, G., Guy, J., Witte, M., Truschow, P., Ruppel, 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. ISSN: 1047-3211 (Nov. 2020).
3. Milham, M. *et al.* Accelerating the Evolution of Nonhuman Primate Neuroimaging. *Neuron* **105**, 600–603. ISSN: 0896-6273 (Feb. 2020).

## PREPRINTS

1. 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. *bioRxiv* (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 15<sup>th</sup> European Molecular Imaging Meeting (virtual)* Online 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 27<sup>th</sup> 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 27<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine Digital Poster (2019).
4. **Sirmpilatze**, N., Baudewig, J., Kötz, K. & Boretius, S. *Optimizing medetomidine anesthesia for fMRI in rats in 11<sup>th</sup> 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 34<sup>th</sup> Annual Meeting of the European Society for Magnetic Resonance in Medicine and Biology* Poster (2017).

## OPEN DATASETS

1. **Sirmpilatze**, N. & Klink, P. C. *RheMAP: Non-linear warps between common rhesus macaque brain templates* (Zenodo, May 2020).
2. **Sirmpilatze**, N., Baudewig, J. & Boretius, S. *Temporal stability of fMRI in medetomidine-anesthetized rats* (OpenNeuro, Nov. 2019).