Nicolás Gravel, Ph.D.

Contact Information

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Suderoder Str. 32, 12347 Berlin

Languages: es, en, de (b.2.1)

Research Interests

Neuro-imaging, bio-instrumentation, vision: Theoretical neuroscience, computational modeling, artificial intelligence, data visualization, hardware and software development, education, basic and applied research, sustainable technologies.

Academic Appointments

Postdoctoral Researcher **April 2019 to present**

- Affiliations:
  - Department of Education and Psychology, Freie Universität Berlin.
  - Ernst Strüngmann Institute for Neuroscience, Frankfurt.
- Laboratories:
  - Neural Dynamics of Visual Cognition
  - Mechanisms and Functions of Rhythmic Neuronal Synchronization

Visiting Researcher **March 2016 to January 2017**

Brain-network modeling and computational connectomics

- Computational Neuroscience Group, Departamento de Biología, Universidad Pompeu Fabra, Barcelona.

Doctoral Researcher **June 2013 to September 2018**

Development of anatomical MRI techniques and fMRI analysis methods

- Laboratory for Experimental Ophthalmology, Department of Ophthalmology, Groningen University Medical Center.

Research Assistant **March 2010 to March 2012**

Implementation of electrophysiological recording and closed-loop control equipment for behavioral experiments in rodents

- Laboratorio de Circuitos Neuronales, Departamento de Psiquiatría, Facultad de Medicina, Universidad Católica de Chile, Santiago.

Research Assistant **March 2009 to December 2009**

Video-tracking of insect behavior

- Instituto de Entomología, Departamento de Biología, Universidad Metropolitana de Ciencias de la Educación, Santiago.

Teaching Assistant **March 2008 to March 2009**

Introducción a la bio-instrumentación

- Laboratorio de Biología de la Cognición, Departamento de Biología, Facultad de Ciencias, Universidad de Chile, Santiago.

Education

University of Groningen, Groningen, The Netherlands.

Ph.D., Behavioral and Cognitive Neuroscience **August 2013 to April 2018**

Universidad de Chile, Santiago, Chile.

L.Sc., en Ciencias con mención en Biología **March 2004 to December 2009**

Hardware and Software Skills

- Instrumentation, microcontrollers, data acquisition.
- Computer programming (Python, Matlab, Lab-View, KiCad, Bash-script, JSON, SLURM).
- Analog and digital electronics, printed circuit board design.

Peer-reviewed Journal Publications

[1] Invernizzi, A., Gravel N., Haak KV., Renken, R. , Cornelissen, FW. (2021) Assessing Uncertainty and Reliability of Connective Field Estimations From Resting State fMRI Activity at 3T. Frontiers Neuroscience 15, 625309

[2] Gravel, N., Renken, R., Harvey, B., Deco, G., Cornelissen, FW. , Gilson. M. (2020). Propagation of BOLD activity reveals task-dependent directed interactions across human visual cortex. Cerebral Cortex 200, 5899-5914.

[3] Hindriks, R., Mantini, R., Gravel, N., Deco, G. (2018). Latency analysis of resting-state BOLD-fMRI reveals traveling waves in visual cortex linking task-positive and task-negative networks. NeuroImage 200, 259-274.

[4] Servaas, M., Kos, C., Gravel, N., Marsman JB., van Tol, MJ. , Aleman, A. (2018). Rigidity in Motor Behavior and Brain Functioning in Patients With Schizophrenia and High Levels of Apathy. Schizophrenia bulletin 45 (3), 542-551.

[5] Gravel, N., Harvey, B., Renken, R., Dumoulin, SO. , Cornelissen, FW. (2018). Phase-synchronization-based parcellation of resting state fMRI signals reveals topographically organized clusters in early visual cortex. NeuroImage 170, 424-443.

[6] Nordhjem, B., Petrozzelli, C., Gravel, N., Renken, R. , Cornelissen, FW. (2015). Eyes on emergency: Fast detection yet slow recognition of emerging images. Journal of Vision 15, (9), 8.

[7] Gravel, N., Harvey, B., Nordhjem, B., Haak, K., Dumoulin, SO. Renken, R., Curcic-Blake, B. , Cornelissen, FW. (2014). Cortical connective field estimates from resting state fMRI activity. Frontiers in neuroscience 8, 339.

Awards and fellowships

[1] Alexander von Humboldt fellowship for post-doctoral research (Germany).

[2] Advanced Human Capital post-doctoral research scholarship (Chile).

[3] Professor Mulder Stitching doctoral research scholarship (The Netherlands).

[4] Advanced Human Capital PhD scholarship (Chile).

[5] Abel-Tasman pre-doctoral internship scholarship for young talents in the biomedical sciences (The Netherlands).