# Heike Stein

École Normale Supérieure (ENS), Paris
Laboratoire de Neurosciences Cognitives & Computationnelles/Group for Neural Theory
29 Rue d'Ulm
75005 Paris, France
+34 677 864 800
heike.c.stein@gmail.com

## Research Interests

motor control, working memory, cerebellum, cortico-cerebellar interactions, population dynamics

## Current Position

2020 – pres. **Postdoc**
ENS Paris
PI: Alex Cayco-Gajic, PhD
Projects: Cortico-cerebellar interactions during motor learning, population coding in cerebellar molecular layer interneurons

## Education

2016 – 20 **PhD in Computational Neuroscience**
IDIBAPS Barcelona
Marie Skłodowska-Curie/"la Caixa"-INPhINIT Fellow
Supervisor: Albert Compte, PhD
Thesis "Synaptic and circuit mechanisms of working memory and their dysfunction in anti-NMDA receptor encephalitis and schizophrenia"

2013 – 16 **MSc in Cognitive and Affective Neuroscience**
Technische Universität Dresden
Thesis in Statistical Methods in Cognitive Neuroscience, "A dynamic field theory approach to delayed intentions and intention deactivation", 3.7/4.0.

2009 – 13 **BSc in Psychology**
Eberhard Karls Universität Tübingen
Thesis in Knowledge and Media Psychology, "Application of the elaboration likelihood model on learning with wikis", 3.5/4.0.

## Courses

2019 MBL Methods in Computational Neuroscience, Woods Hole, MA (August 2019)

2017 The Computational and Cognitive Neuroscience Summer School, NYU Shanghai (July 2017)

2017 The Mathematics of Memory School, Centre de Recerca Matemàtica Barcelona (January 2017)

2016 Reviewing Core Statistics, Centre de Recerca Matemàtica Barcelona (November - December 2016)

## Previous Research Positions

2016 – 20 **Predoctoral Researcher**
IDIBAPS Barcelona
Project "Working memory in anti-NMDA receptor encephalitis and schizophrenia"
PI: Albert Compte, PhD

2013 – 15 **Research Assistant**
DFG Center "Volition and Cognitive Control" Dresden
Project "Adaptive regulation of cognitive control in dual-task performance"
PI: Rico Fischer, PhD

2014 – 15 **Intern**
Technische Universität Dresden
Project "Comorbidity of atopic dermatitis and ADHD"
supervisor: Katharina Trikojat, PhD

2011 – 12 **Research Assistant**
Knowledge Media Research Center Tübingen
Project "Knowledge acquisition with multimedia"
PI: Katharina Scheiter, PhD

## Fellowships and Grants

2019 Travel Grant, William Randolph Hearst Foundation
for the participation at the MBL Methods in Computational Neuroscience Course

2018 Travel Grant, Universidad de Barcelona
for the participation at SFN Neuroscience 2018

2017 Marie Skłodowska-Curie/"la Caixa"-INPhINIT Fellowship
PhD studies at IDIBAPS Barcelona

## Publications

2020 Barbosa, J.*, **Stein, H.***, Martinez, R.L., Galan-Gadea, A., Li, S. Dalmau, J. Adam, K.C.S, Valls-Solé, J., Constantinidis, C. & Compte, A.. Interplay between persistent activity and activity-silent dynamics in the prefrontal cortex underlies serial biases in working memory. *Nature Neuroscience 23*, 1016–1024 (2020). (* equal contribution)

**Stein, H.***, Barbosa, J.*, Rosa-Justicia, M., Prades, L., Morató, A., Galan-Gadea, A., Ariño, H., Martinez-Hernandez, E., Castro-Fornieles, J., Dalmau, J. & Compte, A. Reduced serial dependence suggests deficits in synaptic potentiation in anti-NMDAR encephalitis and schizophrenia. *Nature Communications 11*, 4250 (2020). (* equal contribution)

## Conference Contributions

2019 **Stein, H.**, Barbosa, J., Dalmau, J., & Compte, A. NMDA-receptor dysfunction disrupts serial biases in spatial working memory. Poster presented at Bernstein Conference, Berlin, Germany. September, 2019.

**Stein, H.**, Barbosa, J., Dalmau, J., & Compte, A. NMDA-receptor dysfunction disrupts serial biases in spatial working memory. Poster presented at the Conference on Cognitive Computational Neuroscience, Berlin, Germany. September, 2019.

**Stein, H.**, Barbosa, J., Galan, A., Morató, A., Prades, L., Rosa, M., Arino, H. Dalmau, J., & Compte, A. Synaptic dysfunctions underlying reduced working memory serial bias in autoimmune encephalitis and schizophrenia. Workshop presentation at the Organization for Computational Neurosciences, Barcelona, Spain. July, 2019.

2018 **Stein, H.**, Lozano-Soldevilla, D., Dalmau, J., & Compte, A. Glutamatergic modulation of working memory precision and serial biases. Poster presented at SFN Neuroscience, San Diego, California. November, 2018.

**Stein, H.**, Lozano-Soldevilla, D., Dalmau, J., & Compte, A. Glutamatergic modulation of spatial working memory. Poster presented at the FENS Forum of Neuroscience, Berlin, Germany. July, 2018.

2016 **Stein, H.**, Walser, M., & Scherbaum, S. A dynamic field theory approach to prospective memory and intention deactivation. Poster presented at the Conference of Experimental Psychologists (TeaP), Heidelberg, Germany. March, 2016.

## Supervision and Mentoring

2018-20 Alba Morató (BSc Psychology, BSc Statistics): Decoding working memory from fMRI in patients with autoimmune encephalitis and schizophrenia

2018-19 Laia Prades (MSc Psychology, BSc Biomedical Science): Working memory biases in patients with schizophrenia

## Science Communication and Community Building

2018-20 "Neurochats" Seminar Series, BARCCSYN, Barcelona
Organization of talk series given by and for early-career researchers in the Barcelona Cognitive, Computational and Systems Neuroscience (BARCCSYN) community (@neurochatsbcn)

2019 Generació Ciència, IDIBAPS, Barcelona
Organization of neuroscience outreach activity for high-school students

2018 Festa de la Ciència, Parc de la Ciutadella, Barcelona
Organization of neuroscience outreach activity for the general public

2017 BARCCSYN Community Retreat
Organization of retreat, including its scientific program, social events, and outreach activity