

KATERINA CAPOUSKOVA

PROFESSIONAL SUMMARY

Computational cognitive neuroscientist decoding cognitive flexibility across health, disease, and the wild frontier of AI and social media. I blend machine learning, philosophy, social cognition, and genetics, using superpowers of Python and inventive modeling to push brain science forward. Team-savvy and grant-seasoned, I model and analyse whole-brain dynamics—and I'm here to make the mind's hidden patterns visible.

EMPLOYMENT HISTORY

POST-DOCTORAL RESEARCHER

Sep 2023 - Present

Dartmouth College

Hanover, NH, USA

◆ **Prof. John Murray's Computational Neuroscience Lab**

- ◆ Investigate neural patterns using machine learning and other computational method to advance understanding of whole brain dynamics.
- ◆ **Co-President of Dartmouth Postdoc Association:** Represent postdoctoral scholars in discussions with the university leadership on career development and compensation.
- ◆ Organize workshops and events to enhance professional growth of researchers.
- ◆ Facilitate interdisciplinary research and peer support among postdocs.
- ◆ Develop mentorship programs to guide postdocs in their career paths.

POST-DOCTORAL RESEARCHER

Feb 2023 - Jul 2023

UPF

Barcelona, Spain

◆ **Prof. Gustavo Deco's Computational Neuroscience Group**

- ◆ Managed computational neuroscience academic projects, and served as an advisor for a bachelor thesis machine learning research
- ◆ Finished manuscript for publication

HEAD OF LABORATORY

Sep 2020 - May 2021

GenDet Laboratory, COVID-19 section

Prague, Czech Republic

- ◆ Led SARS-CoV-2 testing team of approximately 20 employees, delivering timely PCR results
- ◆ Coordinated with other lab departments (administration, sampling points, IT), material orders, shifts assignments, communication with Government entities (Public Health Department, Army, and municipalities)
- ◆ Implemented custom IS/IT system responsible for a whole PCR test workflow, including automated communication back to citizens

PHD THESIS RESEARCH

Apr 2018 - Feb 2023

UPF

Barcelona, Spain

◆ **Prof. Gustavo Deco's Computational Neuroscience Group**

- ◆ Collaborated on EEG and fMRI data analysis for HBP SGA3 project Human Brain Project
- ◆ Innovated computational models and pipelines using Python
- ◆ Contributed to significant brain research advancements

MACHINE LEARNING RESEARCHER

Apr 2017 - Apr 2018

Spaceknow Inc.

Prague, Czech Republic

- ◆ Led deep learning projects using Keras, Tensorflow, and Tflern for satellite imagery analysis

- ◆ Executed rigorous data examination for precise feature identification
- ◆ Utilized deep learning frameworks to revolutionize satellite image interpretation and predict trading indexes

DATA ANALYST/EXPERT ADVISOR

Aug 2015 - Sep 2016

eVision Optik, s.r.o.

Prague, Czech Republic

- ◆ Advised on vision impairment utilizing neuroscientific principles, elevating patient results
- ◆ Collaborated with medical teams, simplifying complex ophthalmology data
- ◆ Advocated for innovative ophthalmology practices through data insights, influencing strategic decisions

YOUTH PROGRAM COORDINATOR (VOLUNTEER)

2016

Czechitas

Prague, Czech Republic

- ◆ Championed youth development through KODU algorithm-building, cultivating problem-solving and critical-thinking skills
- ◆ Led an inclusive coding camp for high-school girls, encouraging teamwork and tech literacy
- ◆ Translated computational neuroscience concepts into digestible lessons for academic growth

RESEARCH ASSISTANT

Nov 2014 - Jul 2015

Na Homolce Hospital

Prague, Czech Republic

- ◆ **Laboratory of Molecular Diagnostics**
- ◆ Led DNA processing and analysis using PCR, LightScanner, and agarose gel
- ◆ Ensured accuracy in DNA quantification through spectrophotometry
- ◆ Researched novel use of quantification of cell-free DNA

MSC. RESEARCH PROJECT

May 2014 - Sep 2014

King's College London

London, UK

- ◆ **Dr. Geoff Bird's Social Neuroscience Laboratory (currently at University of Oxford)**
- ◆ Led participant recruitment and screening
- ◆ Conducted innovative tDCS stimulation
- ◆ Analyzed complex data using SPSS
- ◆ Demonstrated proficiency in MatLab and E-prime for control

EDUCATION

PH.D.: COMPUTATIONAL NEUROSCIENCE

Apr 2018 - Feb 2023

Universitat Pompeu Fabra, Computational Neuroscience Group

Barcelona, Spain

Thesis Title: Temporal and spatial patterns differences of basal brain states and cognitive brain states.

MASTER OF SCIENCE: NEUROSCIENCE (WITH MERIT)

Sep 2013 - Sep 2014

King's College London, Institute of Psychiatry

London, UK

Module: Psychiatric Genetics, Project: The Role of the Right Temporoparietal Junction in Social Cognition: A Transcranial Direct Current Stimulation Study.

MASTER OF SCIENCE: PHILOSOPHY OF SCIENCE

Sep 2012 - Sep 2013

The London School of Economics and Political Science

London, UK

Dissertation title: 'How Do We Understand the Behaviour of Others?' Simulation Considered from the Perspective of Self-consciousness as a Theoretical Cognitive Discipline' with focus on social cognition in the overall dynamic embodied cognition theory.

BACHELOR OF ARTS: JOURNALISM, MEDIA STUDIES AND GENDER STUDIES

Sep 2007 - Jan 2012

Masaryk University in Brno

Brno, Czech Republic

Dissertation title: Body and Embodiment in the work of Frida Kahlo analysed through gender theory of Iris Marion Young with focus on bodily self-image of women.

BACHELOR LEVEL STUDIES: PHILOSOPHY OF ART/AESTHETICS

Charles University in Prague

Sep 2008 - Jun 2012

Prague, Czech Republic

Coursework toward B.A. in Aesthetics (180/180 ECTS completed), Research focus: Cognitive function of aesthetic experience; impact on self-representation

HIGH SCHOOL DIPLOMA

Gymnazium Jana Keplera

Sep 1999 - May 2007

Prague, Czech Republic

COURSES

CNEURO: INTERNATIONAL SUMMER SCHOOL AND WORKSHOP IN THEORETICAL AND COMPUTATIONAL NEUROSCIENCE

Aug 2019

Tsinghua University

COMPUTATIONAL NEUROSCIENCE

Jan 2019

Ibro-Simons Computational Neuroscience Imbizo Summer School

DATA SCIENCE IMMERSIVE COURSE

Oct 2016 - Feb 2017

General Assembly

MODEL-BASED NEUROSCIENCE

Jul 2016

Model-based Neuroscience Summer School

COMPUTATIONAL NEUROSCIENCE

May 2015

University of Washington Coursera

ERASMUS EXCHANGE PROGRAMME: PHILOSOPHY AND COGNITIVE SCIENCE

Sep 2009 - Jun 2010

Copenhagen University

SUMMER SCHOOL: PHILOSOPHY, PSYCHOLOGY

Jun 2010 - Aug 2010

Harvard Extension School

SECONDARY SCHOOL SUMMER PROGRAM: PRINCIPLES OF ECONOMICS

Jun 2005 - Aug 2005

Harvard Extension School

LANGUAGES

Czech (*Native*), English (*Highly proficient*), German (*Proficient*), Spanish (*Proficient*), Danish (*Novice*).

LINKS

Github: github.com, LinkedIn: www.linkedin.com, Personal Website: www.katerinac.com, Google Scholar: scholar.google.com.

ADDITIONAL INFORMATION

CONFERENCES

- Capouškova K., Kringelbach M., Deco G. (2019, June). Spatiotemporal characteristics of functional connectivity brain states in rest and cognitive tasks. Poster session presented at the European Neuroscience Conference by Doctoral Students (FENS), Francis Crick Institute, London, UK.

- Capouskova K. (2013, April). Can the situated cognitive loop hypothesis be supported by the notion of self-consciousness?'. Response talk presented at the King's College London Graduate Conference in Philosophy of Mind and Psychology, London, UK.

PUBLICATIONS

1. Capouskova, K., Zamora-López, G., Kringelbach, M. L. & Deco, G. Integration and segregation manifolds in the brain ensure cognitive flexibility during tasks and rest. *Hum. Brain Mapp.* (2023). doi:10.1002/hbm.26511
2. Capouskova, K., Kringelbach, M. L. & Deco, G. Modes of cognition: Evidence from metastable brain dynamics. *Neuroimage* 260, 119489 (2022).
3. Vila-Vidal, M., Capouskova, K., Atasoy, S., Kringelbach, M. L. & Deco, G. Uncovering the spatiotemporal scales of common neuro-mental constructs. *Phys. Life Rev.* (2019). doi:10.1016/j.plrev.2019.10.004

SUPERVISION AND MENTORING

- Primary Supervisor: Guillermo Morales Parra (BSc, 2023) — Developed a convolutional neural network for background removal in used-car images and led end-to-end integration of a sales application prototype.
- Thesis Mentor: Marc Schwartz Palleja (MSc, 2021) — Implemented the LEiDA (Leading Eigenvector Dynamics Analysis) pipeline on an fMRI dataset to identify recurrent patterns in whole-brain dynamics.
- Academic Mentor: Adedayo S. Adewale (2020–2021) — Guided thesis completion and supported PhD application strategy; resulted in successful admission.

PROGRAMMING COURSES

- February 2016: ‚I am making a web‘ – 1 day HTML/CSS workshop, Czechitas, Prague
- April 2016: ‚Introduction to C#‘ - 1 day workshop, Czechitas, Hradec Kralove, CZ
- April – June 2016: ‚Python Course‘ – 3 months course, PyLadies, Prague, CZ
- April 2016: ‚Data Girls‘ – 1 day workshop, Czechitas, Prague, CZ (Power BI, Tableau, Good Data)

OTHER QUALIFICATIONS

- Boat Skipper 2007
- Tennis trainer 2005
- Tennis referee level B 2005
- Open Water Diver 2003

EXTRA-CURRICULAR ACTIVITIES

- Member of the Cognitive Science Society since 2013
- Tate gallery member since 2013
- Member and co-organizer: LSE Czech and Slovak Society & University of London Society (2012-2013)
- Chief Organizer of annual ‚Symposion‘ conference at GJK (2006, 2007)
- First place winner (twice) with designs implemented for Graduation Ball invitation at Gymnazium Jana Kepler (2005, 2007)
- Part of Broader National Czech Ski Team (2002-2004), FIS Federation
- Yoga lover, Arendt worshipper, and beer adorer

SKILLS

Neural Networks, Cognitive Modeling, Electrophysiology, Neuroimaging Techniques, Grant Writing, Innovative Thinking, Python, Research Methodology, Team Collaboration, Critical Thinking, Effective Communication.
