

Bartul Mimica

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EDUCATION

NTNU

PHD IN NEUROSCIENCE
2014-2019 | Trondheim, NO

UNIZG

MSC IN PSYCHOLOGY
2006-2012 | Zagreb, HR
GPA: 4.6 / 5.00

PUBLICATIONS

Mimica B, Dunn AB, Tombaz, T, Bojja VPTNCS, Whitlock RJ (2018). Efficient cortical coding of 3D posture in freely moving rats. *Science* 362, 584-589.

Tombaz, T., Dunn BA, Hovde K, Cubero RJ, **Mimica B**, Mamidanna P, Roudi Y, Whitlock JR. (2020). Action representation in the mouse parieto-frontal network. *Scientific Reports* 10 (5559), 1-14.

OUTREACH

SUMMER SCHOOLS

UiO Understanding Measurements in Neuroscience 2015
CSHL Neural Data Science 2019

INVITED TALKS

Croatian Institute for Brain Res 2018
Harvard Medical School 2019
Princeton Neuroscience Institute 2019

POSTER PRESENTATIONS

Cosyne 2018
FENS 2018
SfN 2016 & 2018

GRANTS & AWARDS

HHMI grant 2019
NRSN grant 2019
New Attendees Travel Grant 2018
UNIZG Rector's Award 2011

SKILLS

LABORATORY

Electrophysiology, optogenetics, immunohistochemistry, optical/IMU tracking of rodent behavior

COMPUTER

Python, Git, C++, LaTeX, Jython, Javascript/HTML/CSS

SUMMARY

I am a post-doctoral researcher in neuroscience, versed in methodology, e-phys data acquisition and analysis tools, tirelessly working on expanding my skill set to become a well rounded scientist. I'm passionate about operationalizing research problems, data science, machine learning and programming, but also public outreach and disseminating knowledge.

I primarily study naturalistic rodent behavior, leveraging high density silicone probe recordings (NeuroNexus, IMEC Neuropixels), optical tracking of animal behavior (OptiTrack) and programming (Python, C++, ...) to quantify tuning properties of recorded neuronal ensembles. I am happy to deviate from my academic roots to explore solutions to diverse problems, such that I developed a strong interest in analyzing and visualizing sport science data, a nous I hope to refine further in the coming years.

RESEARCH EXPERIENCE

KAVLI INSTITUTE/NTNU | RESEARCHER

2020 – | Trondheim, Norway

Overview Type and extent of behavioral modulation across the rodent neocortex. Extracting features from motion capture videos (OptiTrack; marker-based animal tracking) and inertial measurement units (BNO055 Bosch) and relating them to the recorded neuronal activity (Neuropixels/1-p miniscopes).

Responsibilities Animal training/care, probe assembly and implantation surgeries (Neuropixels), data acquisition (SpikeGLX, Motive, CoolTerm, ...), data analyses and visualizations (Python).

Accomplishments Setting up protocols and assembling set-ups for data collection (NI PXI Chassis, OptiTrack, Bosch BNO055, Teensy), creating a semi-automated data processing pipeline (C++, Python, JupyterLab) for the acquired data, developed an ad hoc method for reconstructing probe tracks (Dil staining, 3D rendering of MR scans in Mango).

KAVLI INSTITUTE/NTNU | PHD CANDIDATE

2014 – 2019 | Trondheim, Norway

Overview Neural coding of behavior in the rodent associative cortices.

Responsibilities Dynamical foraging task training, tetrode drive/probe assembly and implantation surgeries (NeuroNexus), data acquisition (Neuralynx, Motive, ...), tissue processing (Cresyl violet, GFP staining), data analyses and visualizations (Python, Jython, Matlab).

Accomplishments Two peer-reviewed publications, three invited talks, four poster presentations, three travel grants, and two summer school attendances.

UNIVERSITY OF ZAGREB | STUDENT INTERN

2010 – 2012 | Zagreb, Croatia

Overview Social/differential psychology projects including studying the determinants of moral judgements, heritability of personality traits, the relationship between the five factor model and musical preferences, and the learning mechanism underlying the mere exposure effect.

Responsibilities Study design, literature search and data processing, questionnaire construction and application, visual task programming, data collection and analyses (SPSS), manuscript writing.

Accomplishments Work resulted in articles/books: (A) Heritability of personality *Psych Bulletin* (2015), (B) Personality and musical preferences: XX. Summer School of Psychology (2011), (C) *Rector's Award* for an outstanding student research project (2011).