KARIN MORANDELL

Data Scientist | Neuroscience PhD

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karinmcode
C work permit, Italian nationality

STRENGTHS

DATA ANALYSIS, MODELING AND MACHINE LEARNING

Proficient several programming languages with experience in computer vision and machine learning (deep learning, AI, data modelling) and algorithm development for behavioral task designing.

VERSATILE ACADEMIC NEUROSCIENCE EXPERTISE

Solid fundamentals with focus on sensory-motor and auditory neuroscience, decision making, brain-machine interface and mental health. Critical thinking and continuous learning mindset. Published 5 scientific articles in reknowned journals.

COMMUNICATION, TEAM WORK AND MANAGEMENT

Proven track record of working, teaching and mentoring in diverse teams, effectively communicating complex scientific concepts through engaging presentations at renowned conferences. Funded my research. Launched several networking events and a community-based organic vegetable delivery system for 60 NYU homes.

EDUCATION

PhD in Neuroscience (5.5/6, magna cum laude)
2012-2017 University of Geneva

Masters in Physiology and Neuroscience
2009-2011 UPMC University (Paris VI)

Bachelor in Biology
2006-2009 UPMC University (Paris VI)

EXPERIENCE

Postdoctoral Fellow in Auditory Neuroscience (Swiss National Foundation)
2019-2023 New York University, NYC (Schneider lab)

• Project: Impact of behavioral states on sound processing and perception in mice.
• Skills: data processing pipelines, closed-loop task design, auditory virtual reality, sound processing, computational methods, machine learning, protocol writing, mentoring, science communication.

→ Used supervised and unsupervised machine learning methods to identify different behaviors in video recordings (support vector machines, K-Means Clustering)
→ Used computational methods to relate behavior to neuronal activity (linear regression, support vector machines, PCA, UMAP, t-SNE, DBSCAN).
→ Used deep learning tools to tracking joints during mouse behavior (DeepLabCut, Sleap)
→ Developed a closed-loop auditory virtual reality task for mice to study their behavior in different conditions written in MATLAB
→ Developed of data processing pipelines to pre-process high-speed imaging data of individual neurons (motion correction, tracking, data management) written in MATLAB, Python and Javascript
→ Continuous learning mindset: DeepLearning.AI TensorFlow Developer Specialization, Advanced Computer Vision with TensorFlow, AI for Medical Diagnosis
→ Science communication: grant writing, secured 2-year salary, publishing in Journal of Neuroscience, protocol writing, mentoring, team work, presentation skills.

Morandell et al. (submitted to J. Neuroscience)

SKILLS

- Statistical Analysis and Modeling
- Machine Learning
- Data Visualization
- Computer Vision

TECH LANGUAGES

- Python (Keras, Tensorflow, BeautifulSoup, scikit-learn)
- MATLAB
- C++
- JavaScript
- HTML
- SQL

LANGAGES

- French
- English
- German
- Italian
- Spanish

ABOUT ME

PERSONALITY

- solution-oriented
- positive
- curious
- open-minded
- social

INTERESTS

- life science
- AI
- globetrotting
- diving
- dancing

Postdoctoral researcher in Somatosensory Neuroscience

2018-2019 University of Geneva (Huber lab)

• Project: Demonstrate how mice perceive vibrations through their paws.
• Skills: behavioral task design, closed-loop systems, automated behavioral tasks.

→ Investigated how real and artificial vibrations applied to mouse forepaw impact behavior and neuronal activity
→ Wrote Python and MATLAB code to analyze multi-modal data (including behavioral videos)

Prsa, Morandell, Cuenu, and Huber (2019, Nature)

PhD candidate in Motor and Decision Making Neuroscience

2012-2017 University of Geneva (Huber lab)

• Project: Contribution of motor cortex to the planning and execution of forelimb movements.
• Skills: behavioral task design, scientific writing, science communication, automating behavioral training and analysis, MATLAB, JAVA.

→ Designed behavioral tasks to train mice to operate a joystick and answer questions about a haptic stimulus (MATLAB, Arduino)
→ Presented my work at 10+ international conferences and seminars (FENS, SFN, EPFL...)

Morandell and Huber (2017, Scientific Reports)
Guo et al. (2014, PLOS One)