Mohammad Fattahi

Ph.D. in Neuroscience,

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Research Interests:

Coordination:

Coordination and movement.

Learning and memory:

- Spatial memory,
- Mechanisms of place cells formation,
- Cognitive map of space.

Social Behaviors:

Brain mechanisms involved in social hierarchy and associated neural oscillations.

Brain Computer Interfaces:

AI-based brain computer interface.

Positions:

Researcher., 2024 - ~.

Institute for research in fundumental sciences (IPM)

Post-doc., 2021 - 2022.

Korea Institute of Science and Technology.

2019 - 2021.

Sabbatical leave.

Educations:

Ph.D., 2012-2018.

Neuroscience, Division of Bio-Medical Science and Technology, KIST school,
Korea University of Science and Technology (UST), Daejeon, S. Korea (ref. 1-2).

M.S., 2008-2011.

Physics, Department of Physics,
Sharif University of Technology (SUT), Tehran, Iran (ref. 3).

B.S., 2004-2008.

Physics, Department of Physics,
Sharif University of Technology (SUT), Tehran, Iran.

Techniques:

Brain Recording Techniques:

- Multi channel single unit recording, silicon probe 32, 64, and 128 channels (NeuroNexus) both acute and chronic,

- Recording using tungsten wire.

Signal Processing:

Spike detection, sorting, and clustering.

Optogenetics:

Design and implementation of home-made optrodes (electrodes with optic fibers).

Artificial Intelligence:

- Semi_supervised video object segmentation,

- AI_based position detection of mice.

Engineering Techniques:

- Building non_motorized treadmill for mouse,

- Programming Arduino board, for automated values and position detection.

Programming Languages:

Python,

MATLAB,

LabView (programming Intan tech. recording system).

Publications:

Mohammad Fattahi, Farnaz Sharif, Tristan Geiller and Sébastien Royer (2018) Differential representation of landmark and self-motion information along the CA1 radial axis: self-motion generated place fields shift toward landmarks during septal inactivation. *Journal of Neuroscience,* 38(30):6766 – 6778 .

Tristan Geiller, **Mohammad Fattahi**, June-Seek Choi & Sebastien Royer (2017) Place cells are more strongly tied to landmarks in deep than in superficial CA1. *Nature Communications* 8, 14531.

Conference Presentations:

2017, Brain Science Institute (BSI),
Mohammad Fattahi, Tristan Geiller and Sébastien Royer. Path integration-generated place fields inhabit superficial CA1 and transiently remap during septal inactivations.

2017, Korea Society Brain Neuroscience (KSBN),
Mohammad Fattahi, Tristan Geiller and Sébastien Royer. Path integration-generated place fields inhabit superficial CA1 and transiently remap during septal inactivations.

2016, Brain Science Institute (BSI),
Mohammad Fattahi, Tristan Geiller and Sébastien Royer. CA1 cells in path integration zone remapped after inactivation of medial septum.

Hobbies:
Playing violin (beginner!), mountain climbing.