Meysam HASHEMI

Senior Research Flow

Welcome to my home page

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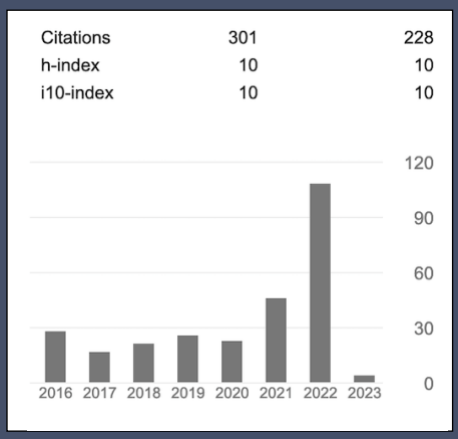
French, Iranian

LANGUAGES

English, French, Persian

Google Scholar



ResearchGate

References

Viktor JIRSA (viktor.jirsa@univ-amu.fr)
Axel HUTT (axel.hutt@inria.fr)
A. VALIZADEH (valizade@iasbs.ac.ir)

Profile

I develop and adapt biologically- and physics-informed AI/ML tools for flexible and efficient parameter estimation using Frequentist and Bayesian approaches. I have extensive experience (>12 years) in working with computational models at single spiking neuron, neural populational (mean-field), and whole-brain levels, both analytically and numerically, to improve diagnostics, interventions and therapies for brain-related medicine, digital health and drug research (General Anaesthesia, Epilepsy, Parkinson, Alzheimer, Aging, AUD, and other brain diseases).

EDUCATION

- **Bachelor of Science: Physics, solid state | 2004-2008**
  KHU, Tehran, Iran.
- **Master of Science: Physics, soft condensed matter | 2008-2012**
  IASBS, Zanjan, Iran.
  Thesis: *Effect of duration of synaptic activity on spike rate of a Hodgkin-Huxley neuron with delayed feedback.*
- **PhD: Computer science | 2012-2016**
  Université de Lorraine, Nancy, France
  Thesis: *Analytical and numerical studies of thalamo-cortical neural population models during general anesthesia.*
- **Postdoctoral: AI/ML for digital brain twins | 2016-2023**
  Aix-Marseille université, Marseille, France
  Project: *State-of-the-art Bayesian inference on the virtual brain models for brain diseases; Deep neural density estimators for simulated-based inference and adaptive Monte Carlo for principled and automatic statistical estimation.*

WORK EXPERIENCE

- **PhD. researcher:** INRIA Grand-Est, Nancy, France | **2012-2016**
- **RHU researcher:** INS, EPINOV, Marseille, France | **2016-2023**
- **Engineer researcher:** SATT Sud-Est, Marseille, France | **2017-2018**
- **Data scientist:** EBRAINS, Human Brain Project (HBP) | **2018-2023**

SKILLS

- Bayesian inference on Brain Signals: (S)EEG/MEG, fMRI, for Clinical Trials.
- Oscillations, Spiking and Neural-Mass models, Pharmacometrics, Stimulation.
- Probabilistic AI/ML, Dynamical system, DCM, Differential equations (ODEs/DDEs).
- Monte Carlo algorithms, Variational and Simulation-based Inference, Optimization.
- Python, Pytorch, Tensorflow, Matlab, C++, Git, Slurm, high-performance computing.
- PPLs: Stan, PyMC3, NumPyro, Edvard, Turing, scikit-learn, and The Virtual Brain.

ACTIVITIES

- >35 Publications including Lancet Neurology, Science Medicine, Science Advances, Nature Computational Biology, NeuroImage, Neuroinformatics, PLOS CB, …
- Multiple patents with current use in national clinical trials and best tech Innov. HBP).
- (co-)Supervising master and PhD students, teaching, grant-writing, and workshops.