Meysam HASHEMI
Senior Research Flow

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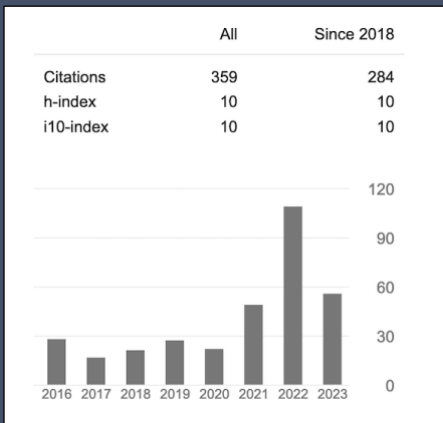
French, Iranian

LANGUAGES

English, French, Persian

Google Scholar

	All	Since 2018
Citations	359	284
h-index	10	10
i10-index	10	10

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 for flexible and efficient inference using Frequentist and Bayesian approaches to decision-making process. I have over 12 years of experience working with computational models, particularly, spiking neurons, neural populational mean-fields, and whole-brain models, both analytically and numerically, to improve diagnostics, intervention strategies, and therapies for brain-related medicine, digital health, and drug research (including Anaesthesia, Epilepsy, Alzheimer, Aging, Parkinson, 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.*

- **Research fellow: 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) | **2022-2023**

SKILLS

- MCMC/HMC, Variational inference, Simulation-based Inference, Optimization.
- Probabilistic AI/ML, HMM, MVAR, GP, Kalman filter, Time series forecasting.
- PD/PK modeling, Oscillations, Signal processing, Neuroimaging, Clinical trials.
- Dynamical system identification, Stochastic and Delay Differential equations.
- Python, Pytorch, Tensorflow, Matlab, C++, Git, high-performance computing.
- PPLs (Stan, PyMC3, NumPyro), VAEs/ NFs, scikit-learn, The Virtual Brain.

ACTIVITIES

- >35 Publications including Lancet Neurology, Science Medicine, Science Advances, Neural Networks, NeuroImage, Neuroinform, PLOS CB, Commun Biol, MLST, PRE.
- 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.