contribution to ROBHOOT

Prof. Wolfgang Maass' (male) experience is in research on spiking neural networks (SNNs), co-inventor of liquid computing and reservoir computing, stochastic computing in SNNs, design of unsupervised and supervised deep learning algorithms for SNNs Experience in leading workpackages on brain-inspired computing and learning in 6 FET-projects of the EU. Wolfgang Maass will lead WP3 in ROBHOOT. He will implement the Evolutionary neural diversification-inspired processes to allow WP3 to implement this feature for discovery in federated networks.

Gender balance

TU Graz wants to employ an equal number of women and men, involving both in research and teaching. The Office for Gender Equality and Equal Opportunity supports the university in achieving this by implementing numerous measures, particularly with the aim of increasing the proportion of women at TU Graz. The equal treatment of women and men is rooted in the Universities Act and belongs to the guiding principles and tasks of the University.

List of relevant papers

1. Papadimitriou, C., Vempala, S., Mitropolsky, D., Collins, M., Maass, W. (2020). Brain computation by assemblies of neurons. PNAS, in press.

2. Bellec, G., Scherr, F., Subramoney, A., Hajek, E., Salaj, D., Legenstein, R., Maass, W. (2020). A solution to the learning dilemma for recurrent networks of spiking neurons. Nature Communications, in press (draft on bioRxiv, 738385).

3. Bellec, G., Salaj, D., Subramoney, A., Legenstein, R., Maass, W. (2018). Long short-term memory and learning-to-learn in networks of spiking neurons. In Advances in Neural Information Processing Systems (pp. 787-797)

4. Maass, W., Natschläger, T., Markram, H. (2002). Real-time computing without stable states: A new framework for neural computation based on perturbations. Neural computation, 14(11), 2531-2560. (2777 citations)

5. Maass, W. (1997). Networks of spiking neurons: the third generation of neural network models. Neural networks, 10(9), 1659-1671. (1688 citations)

Relevant projects

1. 2013 – 2023 Human Brain Project (Flagship Project)

2. 2011 – 2014 BRAINSCALES: Brain-inspired multiscale computation.

3. 2010 – 2014 AMARSI: Adaptive Modular Architectures for Rich Motor Skills

4. 2010 –2012 BRAIN-I-NET: Novel Brain-Inspired Learning Paradigms for Large-Scale Neuronal Networks

5. 2008 – 2012 SECO: Self-Constructing Computing Systems