

Guillaume Bellec

Grieskai 2, 8020 Graz, Austria
+33633436243
born in 1990
guillaume@bellec.eu
guillaumbellec.github.io

Deep learning and Computational Neuroscience

Academic career :

2015 - 2019	PhD in Theoretical Computer Science at TU Graz with Wolfgang Maass : <ul style="list-style-type: none">- deep learning in recurrent networks,- short-term memory and learning in spiking neural networks and- teaching machine learning and reinforcement learning.
2014	Master thesis in computational neuroscience with R. Brette and P. Yger at the Vision institute, Paris
2012-2013	One year research internship in sound and music computing with Anders Friberg at KTH, Stockholm
2012	Research internship in machine learning with Tillmann Weyde at the City University, London

Education :

2013-2014	Master of Mathematics, Vision and Learning (MVA) at ENS Paris-Saclay , Paris
2010-2014	Master of Optimization and Operational Research at ENSTA ParisTech , Paris
2012-2013	Erasmus program at KTH in audio techonology, Stockholm
2008-2010	Classes préparatoires aux grandes écoles, Paris

Scientific achievements and skills :

Reviewer at the NeurIPS conference (2019)
Reviewer at the IEEE signal processing magazine (2019)
Committee member at the 3rd Human Brain Project student conference on interdisciplinary brain research

Summer school DS3 (data science and machine learning) at **Polytechnique** (2019)
Summer school on Brains, Minds and Machines at the MBL lab in Woods hole, organized by the **MIT**
Summer school at the **Princeton Neuroscience Institute** about Cellular, Comp. and Cogn. Neuroscience

Expert knowledge of **TensorFlow**, **PyTorch** and python
Programming of deep and biological neural networks models on **GPU and neuromorphic hardware**
Experience in the analysis of neural data (calcium imaging, electro-physiology)

First author publications :

bioArxiv 2019 (under review)	<i>Bellec*, Scherr*, Subramoney, Hajek, Salaj, Legenstein and Maass.</i> A solution to the learning dilemma for recurrent networks of spiking neurons
NeurIPS 2019 (workshop)	<i>Bellec*, Scherr*, Hajek, Salaj, Subramoney, Legenstein and Maass.</i> Eligibility traces provide a data-inspired alternative to backpropagation through time
NeurIPS 2019 (workshop)	<i>Subramoney*, Bellec*, Scherr*, Hajek, Salaj, Legenstein and Maass.</i> Slow processes of neurons enable a biologically plausible approximation to policy gradient
arxiv 2019	<i>Bellec*, Scherr*, Hajek, Salaj, Legenstein and Maass.</i> Biologically inspired alternatives to backpropagation through time for learning in recurrent neural nets
NeurIPS 2018	<i>Bellec*, Salaj*, Subramoney*, Legenstein and Maass.</i> Long short-term memory and learning-to-learn in networks of spiking neurons
Frontiers 2018	<i>Liu*, Bellec* ... Furber, Maass, Legenstein and Mayr.</i> Memory-Efficient Deep Learning on a SpiNNaker 2 Prototype
ICLR 2018	<i>Bellec, Kappel, Maass and Legenstein.</i> Deep Rewiring: Training very sparse deep networks

Guillaume Bellec

Grieskai 2, 8020 Graz, Austria
+33633436243
born in 1990
guillaume@bellec.eu
guillaumbellec.github.io

Deep learning and Computational Neuroscience

- | | |
|-----------|---|
| JCNS 2016 | <i>Bellec, Galtier, Brette and Yger.</i> (Journal of Computational Neuroscience)
Slow Feature Analysis with spiking neurons and its application to audio stimuli |
| SMC 2013 | <i>Bellec, Friberg, Elowsson, Wolff, Weyde.</i> (International Sound & Music Computing Conference)
A social network integrated game experiment to relate tapping to speed perception and explore rhythm reproduction |
-

Other selected publications :

- | | |
|------------|--|
| IJCNN 2017 | <i>Schmitt, Bellec, ... Legenstein, Maass, Mayr, Schueffny, Schemmel, Meier.</i> (International Joint Conference on Neural Networks)
Neuromorphic hardware in the loop: Training a deep spiking network on the brainscales wafer-scale system |
| ISCAS 2017 | <i>Petrovici, Bellec, ... Maass, Schueffny, Mayr, Schemmel, Meier.</i> (International Symposium on Circuits and Systems)
Pattern representation and recognition with accelerated analog neuromorphic systems |
| AES 2013 | <i>Wolff, Bellec, Friberg, MacFarlane, Weyde.</i> (International Conference of the Audio Engineering Society)
Creating Audio Based Experiments as Social Web Games with the CASimIR Framework |