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Darjan Salaj

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EDUCATION

PhD candidate
Maschine Learning / Comp. Neuroscience
Prof. Wolfgang Maass, HBP
since 2018

MSc in Computer Science
Graz University of Technology
Apr 2017, with distinction

BSc in Computer Science
Graz University of Technology
Sep 2015

SKILLS

MACHINE LEARNING
Deep Learning • Tensorflow
Recurrent Networks • Numpy
pandas • Matplotlib • NEST

SPIKING NETWORKS
Working memory • Novel models
Neuromorphic • Temporal tasks

WEB - MOBILE
Vue.js • Django • PostgreSQL
Android • Flask • NodeJS
LESS • Sass • etc.

LANGUAGES
Python • JavaScript • Java
Kotlin • C# • etc.

DEVOPS - OTHER
CI and CD with Jenkins • REST API
vim • bash • linux • OOP
slurm • HPC usage • tmux
Agile - Scrum • Unit Testing • TDD

COMMUNICATION
English • German

EVENTS

2019
HBP workshop @ Uni Hertfordshire
HBP SP9 workshop @ Fürberg
Intel INRC workshop @ Graz

2018
HBP summit
@ Maastricht, Netherlands
Intel INRC workshop
@ Reykjavík, Iceland
Learning to Learn & HBP SP9 workshop
@ Fürberg am Wolfgangsee

PEER-REVIEWED PUBLICATIONS [GOOGLE SCHOLAR]

A solution to the learning dilemma for recurrent networks of spiking neurons
G. Bellec*, F. Scherr*, A. Subramoney, E. Hajek, **D. Salaj** , R. Legenstein, W. Maass;
under review

Eligibility traces provide a data-inspired alternative to backpropagation through time
G. Bellec*, F. Scherr*, E. Hajek, **D. Salaj** , A. Subramoney, R. Legenstein, W. Maass;
NeurIPS 2019 workshop: Real Neurons Hidden Units

Long short-term memory and learning-to-learn in networks of spiking neurons
G. Bellec*, **D. Salaj*** , A. Subramoney*, R. Legenstein, W. Maass; NIPS 2018

EXPERIENCE

DEEP LEARNING CONSULTING | AUTOMOTIVE INDUSTRY
2018-now | Graz, AT | Virtual Vehicle | https://www.v2c2.at/

- Analyzed the data and help project lead clarify the problem
- Implemented and delivered high accuracy battery capacity predicting model
- Ongoing work on mapless navigation using RL methods

RESEARCH | DEEP LEARNING & COMPUTATIONAL NEUROSCIENCE
2018-now | Graz, AT | TUGraz IGI

- Developed and implemented state-of-the-art and novel models of RNNs.
- Increased the computational power of spiking RNNs to the level of state-of-the-art artificial RNNs on benchmark tasks.
- Under the constraints of neuromorphic hardware (Intel Loihi, SpiNNaker) adapted and scaled up models to achieve new state-of-the-art.

MASTER THESIS | WORKING MEMORY IN SPIKING NEURAL NETWORKS
2017-2018 | Graz, AT | TUGraz IGI | Prof. Wolfgang Maass | Prof. Robert Legenstein

- "Spike-based LSTM-like Modules in Neural Networks"
- Developed and benchmarked novel RNN models in Tensorflow.

L2L | LEARNING TO LEARN FRAMEWORK
2017 | Graz, AT | TUGraz IGI

- Contributed to Pypet based gradient-free optimization framework.
- Integrated of NEST module SPORE as optimizee.

MYTHING.COM | FULL-STACK WEB DEVELOPMENT
2015-2018 | Graz, AT

- Core full-stack developer of 3D printing web marketplace.
- Django • PostgreSQL • Docker • Celery • Jenkins • AWS • Scrapy

TUTORING | UNDERGRADUATE CLASSES
2014-2015 | Graz, AT | TUGraz ISDS | Prof. Keith Andrews

POCKET CODE | WEB DEVELOPMENT | GRAPHICAL DESIGN
2014-2015 | Graz, AT | TUGraz IST | Prof. Wolfgang Slany

- Web developer and designer for Catrobat project (**developer.catrobat.org**)

WINNING.AT | WEB DEVELOPMENT: NODEJS, SQL, LESS
2012-2013 | Graz, AT