# **GEORGIOS IS. DETORAKIS, PH.D.**

Eleven years of research experience in scientific laboratories of various disciplines such as computational neuroscience, machine learning, neuromorphic computing, control theory, and robotics. Three years of experience in industrial applications of machine learning, time series analysis, and natural language processing. Strong abilities in combining and bridging different fields such as machine learning, neuroscience, computer science, and mathematics. Strong mathematical skills, especially in linear algebra, dynamical systems, signal processing, control theory, and numerical simulations. Long experience in programming in system and scripting languages.



#### CONTACT

gdetor@protonmail.com

+1 (949) 2410844

gdetor.com

@gdetor

in Georgios Is. Detorakis

0000-0001-5891-1702

Publication list

### **SKILLS**

Programming	
Python	••••
С	
C++	
Rust	
Shell Script	
Matlab/Octave	
HTML/CSS	
L-T-V	

Latex	
Software & Tools	
Machine Learning	
(e.g., Pytorch, Keras, Sklearn	)
NLP	
(e.g., Hugging Face, spaCy)	
Visualisation	
(e.g., Gnuplot, Paraview, Graphviz)	
Data handling/analysis	
(e.g., Pandas)	
Numerical Libraries	
(e.g., FEniCS, LAPACK/BLAS)	
HPC Libraries	
(e.g., MPI, OpenMP, CUDA)	
Neural Simulators	
(e.g., Neuron, Brian)	

#### Operating Systems

Office

**French** 

Operating systems	
Linux	00000
MacOS	00000
Windows	••••
Languages	
Greek	00000
English	00000

### **S** WORK HISTORY

# 11/2020 - Now

Machine Learning Engineer

Time series forecasting and analysis | Computer vision (object detection and tracking)

**6** 08/2019 - 11/2020

adNomus Inc., San Jose, CA, USA

**♀** Independent Contractor, Irvine, CA, USA

Data Science Architect

NLP for recommendation systems | Time series (behavioral data) forecasting

**1** 02/2016 - 07/2019

♥ University of California, Irvine, CA, USA Postdoc Researcher

Neuromorphic computing | ML/DL algorithms for neuromorphic computing | Stochastic neural networks

**12/2013 - 12/2015** 

• Postdoc Researcher

CentraleSupelec, Gif-sur-Yvette, France

Neuroscience and control theory | Parkinson's disease | Computational modeling

#### **EDUCATION**

**10/2010 - 10/2013** 

Ph.D. in Computer Science

• University of Lorraine, Nancy (France)

Cortical plasticity, dynamic neural fields and self-organization

**1** 01/2007 - 04/2009

**♀** University of Crete, Heraklion (Greece)

M.Sc. in Brain & Mind Sciences

**M** 09/2002 - 09/2006

**♀** University of Crete, Heraklion (Greece)

B.Sc. in Applied Mathematics

Mathematical methods and software development track

## SOFTWARE

GAIM

A C++ library for Genetic Algorithms and Island Models

O NISA

A C/Python simulator for the Neural and Synaptic Array Transceiver (NSAT) neuromorphic framework

NSATcarl

A C++ interface of CARLsim for the NSAT neuromorphic framework

SPySort

A Python package for spike sorting

#### **TALKS**

- ➡ Biologically plausible contrastive divergence: Towards an abstract complementary learning system, Hughes Research Laboratory (HRL), Malibu CA (USA), 2017
- Closed-loop deep brain stimulation for Parkinson's disease: A computational study, University of California Irvine, Irvine CA (USA), 2016
- Neural Fields 101, CentraleSupélec, Gif-sur-Yvette (France), 2015
- ★ The perception of touch: A computational approach, Aix Marseille University, Marseille (France), 2014

## **SELECTED PUBLICATIONS**

**	S. Dutta, <b>G. De</b>	g machine with stochastic synapse allows brain-like learning and inference torakis, A. Khanna, B. Grisafe, E. Neftci, and S. Datta  Nature Communications 13, 2571
		elf-Organizing Map and <b>G. Is. Detorakis</b>
₩	2021	Meural Computation, 33(8)
	-	is of a neural field self-organizing map A. Chaillet, and N.P. Rougier
₩	2020	■ The Journal of Mathematical Neuroscience, 10 (20)
	AIM: A C++ lik G. Detorakis, a	orary for Genetic Algorithms and Island Models
		■ The Journal of Open Source Software, 4(44), 1839
	_	nt Normalization in Stochastic Neural Networks 5. Dutta, A. Khanna, B. Grisafe, S. Datta, and E. Neftci
		NeurIPS (NIPS) Conference, Vancouver (Canada)
		bbian Learning with Random Feedback Weights
		T. Bartley, E. Neftci  ■ Neural Networks, 114
	G. Detorakis, S	aptic Array Transceiver: A Brain-Inspired Computing Framework for Embedded Learning 5. Sheik, C. Augustine, S. Paul, B.U. Pedroni, N. Dutt, J. Krichmar, G. Cauwenberghs, E. Neftci Frontiers in Neuroscience (Neuromorphic section) 12
Event-Driven Random Back-Propagation: Enabling Neuromorphic Deep Learning Machines  L. Neftci, S. Paul, C. Augustine, G. Detorakis		
₩	2017	Frontiers in Neuroscience 11, 2017
	cremental sta G. Detorakis a	ability of spatiotemporal delayed dynamics and application to neural fields
		Control and Decision Conference, Melbourne (Australia), 2017
Event-Driven Random Backpropagation: Enabling Neuromorphic Deep Learning Machines  L. Neftci, C. Augustine, S. Paul, G. Detorakis		
		■ IEEE ISCAS, Baltimore (MD, USA)
		mulation of a delayed neural fields model of parkinsonian STN-GPe network: nd computational study
<u></u>	G. Is. Detoraki	s, A. Chaillet, S. Palfi, and S. Senova
₩	2015	Frontiers in Neuroscience, 9:237
		ceptive Fields in a Computational Model of Area 3b of Primary Sensory Cortex s and N.P. Rougier
₩	2014	Frontiers in Computational Neuroscience, 8(76)
of	Ordered Top	Model of the Somatosensory Cortex: Formation, Maintenance and Reorganization ographic Maps s and N.P. Rougier
₩	2012	<b>■</b> PLoS ONE 7(7): e40257
Sel	lf-Organizing	Dynamic Neural Fields
N.P. Rougier and <b>G. Is. Detorakis</b>		
₩	2011	Advances in Cognitive Neurodynamics III, Hokaido (Japan)