GREGORY SZEP

PERSONAL INFORMATION

Born in Vienna, Austria 1992

email	gregory.szep@gmail.com
phone	+44 7956 329010

EDUCATION

*Biophysics &
Machine Learning
Doctorate*

09/2017 - Present   University of London, King's College

PhD · Randall Division of Cell & Molecular Biophysics
Building novel machine learning algorithms for the inference of state-space structures in dynamical systems, with applications in developmental and synthetic biology. Writing software in Python and Julia in collaboration with Station B at Microsoft Research Cambridge. Published works so far in Natural Computing, Nature Comms and JuliaCon.
Attila Csikász-Nagy · attila.csikasz-nagy@kcl.ac.uk Neil Dalchau · ndalchau@microsoft.com

Physics Masters

09/2011 - 05/2015   University of London, King's College

First Class · *Physics MSci* · School of Natural & Mathematical Science
Focus on non-equilibrium statistical mechanics, information theory and complex networks. Masters project involved using the Keldysh formalism to investigate angular dependance of molecular current-voltage characteristics.
Project Supervisor: Prof. Lev Kantorovich · lev.kantorovich@kcl.ac.uk

Exchange Year

08/2013 - 06/2014   University of California, Berkeley

GPA: 3.7 · *Physics Major* · College of Letters & Science
Attended lectures at the Redwood Center for Theoretical Neuroscience. Expanded knowledge on analytical mechanics, special relativity, solid state physics and machine learning. Duration of stay motivated academic path and insight into different academic and industrial cultures.
Study Abroad Tutor: Nicola Bonini · nicola.bonini@kcl.ac.uk

WORK EXPERIENCE

Flux

11/2019 - 12/2020   Data Scientist, London

Delivering business intelligence and consumer analytics on receipt-level transaction data to merchant partners. Applied machine learning with Scala, Python and PostgreSQL; building tools for A/B testing and actionable reports.
Chief Executive Officer: Matty Cusdon-Ross · matty@tryflux.com

Birds.ai

11/2016 - 11/2017   Research Engineer, Delft

Development and maintenance of drone image analysis pipeline for agricultural surveillance and industrial inspection. Applied machine learning techniques - convolutional neural networks - and learned how to deploy scalable and secure web applications using Amazon Web Services.
Chief Executive Officer: Camiel Verschoor · camiel@birds.ai

*Institute of
Science and
Technology*

09/2015 - 11/2016   Graduate Researcher, Vienna

Rotations in cell migration and biochemistry groups lead to investigation of non-equilibrium responses of Lamellipodial Actin and in vitro reconstituted FtsZ:FtsA vortexes. Contributed to Cell paper with Kinetic Monte-Carlo and deterministic rate equation approaches.
Dr. Med. Michael Sixt · msixt@ist.ac.at Prof. Karsten Kruse · k.kruse@physik.uni-saarland.de

07/2014 - 09/2015   Research Intern, NASA AMES SILICON VALLEY

NASA Ames Research Centre

Coding of unsupervised machine learning algorithms to classify sleep stages on high resolution single channel electroencephalogram (EEG) recordings. Extraction of biomarkers related to neurophysiological disorders and development of communication software.
Chief Executive Officer: Dr Philip Low · philip@neurovigil.com

06/2013 - 08/2013   Research Studentship, KING'S COLLEGE LONDON

King's College London

Simulation of photon transport in random lasing process. Collection and analysis of data from experiment. Presentation of findings and evaluation as member of research team.
Research Supervisor: Dr Riccardo SAPIENZA · riccardo.sapienza@kcl.ac.uk

Sep-Dec 2012   Market Stall Owner, CAMDEN MARKET

Camden Market

Managing market stall in tourist area of north London selling 3D IQ puzzles made of wood and bamboo. Creative presentation and sales to young and old audiences. Financial planning.
Supplier Contact: Ben MELDRUM · ben@professorpuzzle.com

COMPUTER SKILLS

Intermediate   DEVELOPMENT Latex, Amazon Web Services PROGRAMMING C++, Lua, Wolfram Mathematica

Advanced   DEVELOPMENT Git, Linux Server PROGRAMMING NodeJs, Python, Julia

LANGUAGES

Intermediate   Russian, French

Advanced   English, German

WORKS

Published

Grant, P. & Szep, G. et al. 2020. Nature Communications 11 (1), 1-8
Interpretation of morphogen gradients by a synthetic bistable circuit.

Dalchau, N. & Szep, G. et al. 2018. Natural computing 17 (4), 761-779
Computing with biological switches and clocks.

Müller, J. & Szep, G. et al. 2016. Cell 171 (1), 188-200. e16
Load-adaptation of lamellipodial actin networks.

Conferences

2020. JuliaCon. Virtual Talk youtu.be/vp-206RgeVE

2019. Quantitative Systems Biology Workshop. London. Organisation Committee

2019. Bioinspired analysis of dynamical systems, Hungary. Talk

2018. EMBL Symposium: Biological Oscillators, Heidelberg. Poster

In Preparation

Szep, G. Dalchau, N. & Csikász-Nagy, A.
Inference of Bifurcations with Differentiable Continuation.

Coppard, V. & Szep, G. et al.
A new computational tool for exploring the human cell atlas.

AWARDS & QUALIFICATIONS

Awards
2018 · Microsoft Research PhD Scholarship

2014 · Study Abroad Student Award – King's College London

2013 · The Gordon Rogers Scholarship - Top 5 Performing Students

2013 · Andrewes Prize - Best Examination Performance

2012 · Dillon Prize - Best Examination Performance

Qualifications
2016 · Electron Microscope Training - Institute of Science & Technology

2013 · Basic Laser Safety Certificate - King's College London

2012 · Kids Ski Instructor Certificate - Swiss Snowsports

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