Christophe Trefois

PhD, Dipl.-Ing

38, rue de Kleinbettingen L-8436 Steinfort (a) +352 661 777 175 □ christophe@trefois.com www.trefois.com in trefoischristophe Trefex Date of birth: May 1, 1984



Looking for a challenging position at the bridge between Systems Biology and Computer Science

Education

2010–2014 PhD in Systems Biomedicine, Luxembourg Centre for Systems Biomedicine (LCSB) – University of Luxembourg, Luxembourg, very good

Advisor: Prof Dr Rudi Balling

2006-2008

Master of Science in Communication Systems, Ecole Polytechnique Fédérale

de Lausanne (EPFL), Lausanne, 5.32/6

Advisor: Prof Dr Jean-Pierre Hubaux

<u>200</u>3–2006

Bachelor of Science in Communication Systems, Ecole Polytechnique Fédérale

de Lausanne (EPFL), Lausanne Advisor: Prof Dr Patrick Thiran

1<u>996–20</u>03

Baccalauréat scientifique (Section B), Lycée Athénée de Luxembourg, Luxem-

bourg, cum laude

PhD dissertation

title Detection and characterization of critical transitions in mitochondrial activity via high content screening

supervisors Prof Dr Rudi Balling and Dr Paul Antony

description Critical transitions exist in many dynamical systems, ranging from the Earth's climate system to microcosm populations. During a critical transition, the state of a dynamical system abruptly changes from one stable state to another, typically without obvious prior warning. In this thesis, we set out to study critical transitions in a simple cellular model using mitochondrial membrane potential as readout. To identify critical transitions, we established a modular high-content screening platform allowing systematic perturbation of oxidative phosphorylation. We showed that critical transitions are an intrinsic property of cellular systems and that two-component Gaussian mixture models adequately describe critical transitions dynamics.

url http://orbilu.uni.lu/handle/10993/17706

Master thesis

title Secure integration of wireless sensor networks into application

supervisors Prof Dr Jean-Pierre Hubaux and Laurent Gomez

description

Performed a risk analysis on integrating wireless sensor networks with business applications using NIST SP 800-30. We analyzed a security scheme which does not rely on complex operations guaranteeing end-to-end confidentiality of sensor data and provided both an in silico software demonstration and a hardware validation using physical components.

url http://infoscience.epfl.ch/record/161912

Experience

Vocational

2014

Postdoctoral researcher, University of Luxembourg (LCSB), Luxembourg

Leading a change management initiative around reproducible science for the institute (\sim 200 people) and pursuing research on critical transitions in systems in the bioinformatics core group led by Dr Reinhard Schneider.

Main activities include:

- Setting up core virtualization platform for the LCSB;
 - Technologies: Puppet, Foreman, Free-IPA, Icinga 2, Xen.
- Creating data infrastructures for various data types of research labs;
- Contribute to setting up best practises and training to researchers;
- Establish policies on data management.

2010-2014

PhD candidate, University of Luxembourg (LCSB), Luxembourg

Obtained PhD and contributed to building up a new institute in the experimental neurobiology group led by Prof Dr Rudi Balling.

Contributions to the institute included:

- Established an automated high content screening platform;
- Set up a microscopic imaging database (OMERO);
- Set up a laboratory information management system (LIMS) for tracking samples.

2008-2010

Senior IT auditor and consultant, Ernst & Young, Luxembourg

Worked in the IT risk & and assurance team for various national and international clients. Activities included:

- o IT effectiveness, cost optimisation and service management
- Risk assessment and modeling
- Business process improvement
- o IT general controls, operations and infrastructure diagnostics
- Change management audits, logical and physical access control security audits

Research assistant, SAP Labs France, Sophia Antipolis, France

Research assistant in the security and trust department of SAP Labs France. This work resulted in my Master thesis.

Software developer, *Ecole Polytechnique Fédérale de Lausanne*, Switzerland Development of a template based website using groovy, ajax, Java and HTML/CSS.

Web developer, Web Technologies, Luxembourg

Development of a PHP based holiday planner for employees.

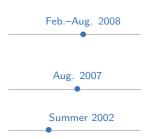
Web developer, *Web Technologies*, Luxembourg Development of an eCommerce platform.

Teaching

Mar.-Jul. 2007

Summer 2001

Teaching assistant, *Ecole Polytechnique Fédérale de Lausanne*, Switzerland Information and technology project course – Bachelor in communication systems. Helping students on their assignments and supervising groups of 2 students for their java programming project.



Jul.-Aug. 1999

Teaching assistant, *Ecole Polytechnique Fédérale de Lausanne*, Switzerland Computer networking course – Bachelor in communication systems. Helping students on their assignments and projects and overseeing exams.

Teaching assistant, *Ecole Polytechnique Fédérale de Lausanne*, Switzerland Java object oriented programming course – Bachelor in communication systems. Helping students on their assignments and projects and overseeing and correcting exams.

Fund support, State Street Bank, Luxembourg

Distribution of mail, sorting of print outs from various funds

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Languages

Luxembourgish Native

English Proficient

French Proficient

German Proficient

Computer skills

Languages Java, Python, C++, C#, Ruby, YAML, PHP, HTML/CSS, VHDL

Databases MySQL, PostgreSQL, MaxDB

Web PHP, JSON, HAML, XML, Twitter Bootstrap, WebSockets

System administration Puppet, Foreman, FreeIPA, Icinga 2, Xen, Vagrant, Bash

Platforms Gitlab, Docker, OMERO, ownCloud, Joomla CMS

Tools & OS LATEX, Git, SVN, Vim, Eclipse, Visual Studio, R, (Libre-/Microsoft) Office, Windows, Linux (Ubuntu, CentOS), OS X

Activities

2014

Vice-President, LuxDoc, Luxembourg

Vice-President of the Luxembourg young researchers association. www.luxdoc.org

2012-2014

1995-2003

President, LuxDoc, Luxembourg

President of the Luxembourg young researchers association. www.luxdoc.org

Percussionist, Just Music Bartreng, Luxembourg

Founding member of the music group and played various percussion instruments in a group of 5-8 people. Obtained the Bronze medal for services rendered to the Luxembourgish cultural life. www.justmusic.lu

Publications

2015

2014

Trefois, Christophe, Paul MA Antony, Jorge Goncalves, Alexander Skupin, and Rudi Balling, "Critical transitions in chronic disease: transferring concepts from ecology to systems medicine". In: *Curr. Opin. Biotechnol.* 34, pp. 48–55.

Antony, Paul MA, Olga Boyd, Christophe Trefois, Wim Ammerlaan, Marek Ostaszewski, Aidos S Baumuratov, et al., "Platelet mitochondrial membrane potential in Parkinson's disease". In: *Ann. Clin. Transl. Neurol.* 34, pp. 48–55.

