Dr. Thomas Cokelaer

Cambridge CB12LY, U.K.
Telephone: 01223 519 532 (home), 07757 928 749 (mobile)
E-mail: cokelaer@gmail.com, cokelaer@ebi.ac.uk
homepage: http://thomas-cokelaer.info

Objective

Currently looking for a new and challenging position as a Data Scientist, one which will make best use of existing skills and experience obtained in data analysis and systems biology whilst enabling further professional development.

Summary of Qualifications(or personal/professional profile)

Interdisciplinary researcher with experience in different scientific fields : astrophysics, plant modelisation, system biology. Ability to design high quality software and pipelines to analyse, visualise and interpret data sets Quick to assimilate new ideas, concepts and cutting-edge technologies whilst demonstrating a logical and analytical approach to solving complex problems and issues. A valuable member of collaborative working groups who encourages communication and sharing knowledge amongst colleagues.

Work Experience

Sept 2011 – Feb. 2015: **Research Associate, European Bioinformatics Institute, Cambridge, U.K.**

- Data mining of mass spectrometry data sets (e.g., YEAST) to infer protein activities in the context of signalling pathway.
- Phosphoproteomics : development of cellnopt (www.cellnopt.org), a software designed to model protein signalling networks trained to data using various logic formalisms: steady states, fuzzy, ODE. Maintenance of the software on BioConductor.
- Analysis of multi-dimensional perturbation data sets (luminex, RPPA) for various perturbation/protein/cell lines and creation of prior knowledge networks from literature and databases.
- Developement of BioServices, a software used to retrieve information from various web services (KEGG, UniProt, Ensembl, WikiPathways, NCBI, and many more). See online Documentation for details.
- Development and utilisation of optimisation algorithms developed in the context of logic modelling: from genetic algorithms to Monte Carlo Markov Chain.
- Part of the organisation of the DREAM challenges (organisation-side in DREAM6-7-8), a community-based effort to analyse biological data sets https://www.synapse.org/ on breast cancer cell lines and gene regulatory networks.
- Manipulation of biological networks (e.g., protein-protein interactions) and transformation to logic model using standards such as SBMLqual.
- Trainer in tutorial and courses related to bioinformatics (e.g., logic modelling, web servcice access, analysis of biological data sets)

Nov. 2008 – Dec. 2010: **Computer scientist, National Institute of Research in Computer Science (INRIA), Montpellier, France**

- Playing a pivotal role in the development of OpenAlea software, a platform dedicated to plant modelisation. Regular releases following full life cycle: conception, implementation, validation, documentation.
- Development of a dataflows in Visual Programming Environment, VisuAlea.
- Manipulation and development of statistical toolboxes (standard distributions, Markov chains ...).
- Modelisation of a stochastic and mecanistic model of tree with prediction of future yields.
- Actively involved in the assessment of potential software improvments and making decision accordingly.

April 2003 – July 2008: **Research Associate, Department of Physics and Astronomy in the "Gravitational Physics" group (15 members), at Cardif university, Wales, U.K.**

- Development of scientific libraries within the American project in Astronomy (LIGO Algorithm Library or LAL). Collaborative development with 50 other colleagues using concurent version tools.
  - Signal detection in noisy data using matched filtering technique (Fourier transform, chi- square veto, Monte Carlo simulation).
  - Spectral density estimation (Fourier or parametric)
  - Parameter estimation using statistical tools such as Fisher matrix.
  - Time Frequency analysis and image processing.
  - Models based on systems of differential equations using C library like GNU scientific Library.
- Member of the LIGO Library (PyLAL), a python software dedicated to data visualisation.
- Portage of complex pipeline using the GRID technology to use parallelisation technologies (Condor).
- Manipulation of large datasets (tens of Tbytes) with low latencies.

Education

1999-2003	**PhD Science (physics/astronomy)** -- subject: Detection of gravitational waves from coalescing black holes – place: Observatoire de la Cote d'Azur, Nice, France.
1998-1999	**MSc, Astronomy,** University of Nice, France.
1996-1998	**BSc, Physics,** Dunkirk University (Université du littoral, Dunkerque), France
1994-1996	**BSc, Mathematics and computer science,** Calais University, France

Computer Skills

Programming languages:

- **Python**: Expert knowledge of standard packages, test suite (nosetests), scientific libraries (Scipy, Numpy, Matplotlib, Pylab, Pandas, Networkx). Packages available on Pypi (e.g. spectrum, bioservices)
- **Others**: C/C++, HTML, ReST syntax, Unix tools, LaTeX, GIT, SQL databases.

Platforms: Linux (independent under Fedora/Ubuntu), Windows, MacOsX

Software development: Please see github account

Others Skills

- Member of international collaborations (LIGO Scientific Collaboration , DREAM).
- International conference presentations, international meeting presentations.
- Peer-reviewed journal papers (see below, more info or on request).
- Training colleagues and students (masters, PhDs)

Activities and Interests

Sports: Hiking, Badminton, Aikido
Languages: English (fluent), French (native), Spanish (notions)
Full driving licence held

Personal Details

Date of Birth 13 July 1975
Nationality French

More info

Research activities: https://www.researchgate.net/profile/Thomas_Cokelaer
List of publications, conferences, software: http://thomas-cokelaer.info/documents/publications.pdf

References are available upon request