Dr. Thomas Cokelaer

Cambridge CB12LY, U.K.
Telephone: 01223 519 532 (home), 07757 928 749 (mobile)
E-mail: cokelaer@gmail.com
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 whilst enabling further professional development.

Summary of Qualifications(or personal/professional profile)

A highly qualified and experienced computer scientists who specialises in building dedicated software to analyse and visualise raw and processed data from scientific experiments. Utilises Python as a glue language to deliver appropriate solutions. 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 – Sept 2014: **Research Associate, European Bioinformatics Institute, Cambridge, U.K.**

- Development of software written in Python and R languages dedicated to the analysis of data related to protein interactions in human cells. Maintainer of BioConductor packages (e.g. CellNOptR).
- Usage of graph theory tools and optimisation procedure (Genetic Algorithm, Monte Carlo Markov Chain, ...) in the context of logic modelling.
- Manipulation and analysis of mass spectrometry data sets.
- Python interface to Web Services used in Genomics based on REST or SOAP protocols (e.g., UniProt, KEGG, Reactome).
- Participation to the DREAM challenges (organisation-side in DREAM6-7-8), a community-based effort to analyse biological data sets https://www.synapse.org/

Nov. 2008 – Dec. 2010: **Computer scientists, 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 that is written in Python (120k lines of code).
  - Regular releases (every 6 months) of this multi-platform software (under Ubuntu, Fedora, WinXP, MacOsX) and related packages written in Python or C++.
  - Delivering software with a full life cycle: conception, implementation, validation, documentation.
  - Playing a lead role in the validation of the software using test units with nosetests.
- Development of a Visual Programming Environment, VisuAlea, written in PyQt4.
- Development of statistical toolboxes (standard distributions, Markov chains, sequences,...) in Python.
- Development of a visual interface for Pylab/Matplotlib (2D/3D plots).
- Implementation of scientific software for plant modeling using SQL databases (in python), OpenGL for 3D visualisation, graph theory, graph structures for data Input/Output, L-system, differential equations...
- Identifying and meeting the individual training requirements of other members of staff to ensure that competences are shared on a daily basis.
- 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 a scientific library in C language for an 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 Python 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.
- Automatic HTML/CSS page generator using Python scripting.

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**: Good knowledge of standard packages, setuptools, test suite (nosetests), wrapping (Boost python), scientific libraries (Scipy, Numpy, Matplotlib, Pylab, Pandas, Networkx). Packages available on Pypi (e.g. spectrum, bioservices)
- **Others**: C/C++ (scientific library: GSL), Boost Python (interoperability between C++ and the Python), HTML, ReST syntax, Unix tools (e.g., sed, awk, ...), LaTeX, SVN/GIT, SQL database syntax.

Office or development applications:

- Eclipse (PyDev, PyLint plugins), OpenOffice suite, Kile (LaTeX),

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

Others Skills

- Member of international collaboration LIGO Scientific Collaboration made of 600 members and 50 universities.
- International conference presentations, international meeting presentations.
- Peer-reviewed journal papers (>60) and proceedings (>15).
- Training colleagues and students in the use of Python and scientific libraries.

Activities and Interests

Sports: Hiking, Badminton
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