COLUMBIA GLOBAL CENTERS | AFRICA
NAIROBI

Vacancy: SOFTWARE ENGINEER / SCIENTIFIC COMPUTING SPECIALIST -AfSIS

Columbia Global Centers | Africa (CGC Africa) is part of Columbia University's global network of centers, which together aim to create opportunities in research, scholarship and teaching around the world, and expand Columbia's mission as a global university. Established in Nairobi in 2011, CGC Africa links the continent to Columbia's scientific rigor, technological innovation, and academic leadership. The Centre works closely with policy makers, governments, and regional and African institutions, providing them with objective, science-based advice.

The goal of the African Soils Information Service Project is to improve the management, productivity and sustainability of African soils through the acquisition and application of near real-time and location-specific information about land and soils.   The Project supports evidence based decision-making that will enhance agricultural and economic development, environmental sustainability and climate change adaptation across Africa.

Are you an expert in scientific computing, mathematical analysis, and algorithm design? Then you are the expert to join a fast-paced team of developers and data scientists in the construction of novel and socially-conscious precision agriculture applications for the estimation and prediction of soil quality across Africa.

Duties and Responsibilities

Responsible for algorithm analysis and design, rapid transcription of theoretical ideas into computer programs, and coordinating with front-end and back-end engineers to properly incorporate these programs into a scalable web service. Must be able to work with remote co-workers via real-time messaging systems.

Selection Criteria
- PhD degree in computer science / signal processing / computational engineering or closely related technical discipline.
- +5 years of research experience with publications in both theoretical and applied mathematics, including a proven track-record of designing and coding clever solutions for industrial applications.
- Competition-level familiarity with both the theory and implementation of efficient algorithms, including smart data structures, recursion and graph algorithms.
- Graduate-level background and track record in probability / statistics, including experience with stochastic algorithms such as Markov Chain Monte Carlo methods, expectation maximization, and simulated annealing.
- Exceptional familiarity with both the theory and implementation of digital signal processing techniques with an emphasis on imaging, including denoising, filter

design, sampling and reconstruction, pattern recognition, Fourier analysis, wavelet transforms, signal modeling, segmentation, and morphological image processing.

- Extraordinary fluency with a high-level scientific computing language such as MATLAB, Mathematical, Octave, or R.
- High fluency with C++.
- High fluency with at least one scripting language, such as Python (preferred).
- Experience with cloud computing, Map-Reduce frameworks, and high-performance computing techniques such as OpenMPI and Boost C++ multi-threading.
- Practical experience with using well-known scientific computing packages such as GSL, LAPACK, OpenCV, MOSEK, and cvx.
- Strong competency in discrete math and combinatorics for computer science.
- Extensive knowledge of git version control and using Linux as a development platform.
- Thorough understanding of the entire LAMP stack, including proficiency with PHP programming, building database-driven websites, and Apache server administration.
- Front-end experience with HTML, CSS, and JavaScript.
- Experience with public speaking and distilling technical information in accessible ways via polished viewgraphs.
- Experience with writing and winning research proposals.
- Professional work ethic, on-time delivery, and willingness to learn.

Columbia Global Centers Africa is an equal employer. Applications for this position should be sent to recruitment@cgcafrica.org not later than **5th September, 2013**. The CV should include contacts of three referees. Only shortlisted candidates will be contacted.

To learn more about the African Soil Information Service please visit the following websites: http://www.africasoils.net/
and http://globalcenters.columbia.edu/nairobi/content/jobs