CAREER OPPORTUNITY

The CSIR (Council for Scientific and Industrial Research) is a leading scientific and technology research organisation, implementing projects throughout Africa and making a difference in people’s lives.

The establishment of the Centre for High Performance Computing (CHPC) is in direct response to the need to foster High Performance Computing (HPC) technology, research and human capital development and application within South Africa. The Center, in its vision to be a preferred partner for HPC solutions in the country and the region, provides high-end computational resources with a mixture of technologies, to enable cutting-edge research in a broad range of domains. As part of up-skilling the research community on HPC related fields, various interventions targeting undergraduate students to well-established researchers are ongoing, and have proven to be of international quality.

CHPC prides itself of the Use-centric approach, where the key responsibilities of staff at the Center is to ensure value-add to the Users and removing barriers that prevents efficient adoption of HPC technologies. As part of this support, CHPC runs a Tier-2 CERN facility with around 2400 jobs/day on the ALICE experiment. The Center wishes to appoint a highly competent researcher within its Scientific and Engineering Applications Division to support this user community.

Research Scientist: Grid computing

About the job:

The Center for High Performance Computing, with its operation in Cape Town, manages and operates state-of-the art HPC systems, with complex and diverse architecture. These systems are maintained through a variety of contracts with different suppliers. On the day-today basis the management of the systems, support of over 500 active users across the country, is provided by a team of System Administrators. The center is thus looking for a highly skilled Research Scientist to provide support to the Researchers across the country.

CHPC provides world-leading platforms for accelerating open scientific discovery through computation by some of the world’s most advanced science, engineering and other research teams dealing with unique, unprecedented computational science problems. The incumbent must be able to work with a diverse population and environment with constantly changing needs and priorities and be able to develop innovative solutions to science, engineering and other research programs.
Key responsibilities:

- Operation and maintenance of a 2400-CPU-core node in the Worldwide LHC Computing Grid (WLCG), which provides computing resources to the ALICE and ATLAS collaborations at CERN.
- Interface with the computing groups in the ALICE and ATLAS collaborations, both at CERN and at other institutions contributing computing resources to ALICE and ATLAS via the WLCG.
- Interface with the South African high-energy physics community, in particular the ALICE and ATLAS groups.
- Strengthen grid computing in South Africa through collaboration with other grid centers at universities and research laboratories.
- Development of a research programme in high-performance and high-throughput computing for high-energy physics, and contribution to the computing efforts of the ALICE or ATLAS collaborations, e.g. the ALICE O2 Project.
- Training and co-supervision of student projects on grid, high-performance and high-throughput computing within the ALICE and ATLAS collaborations at CERN.
- Promote and foster the development of High Performance computing and Scientific Computing in South Africa and possibly in Africa according to the mandates of the Department of Science and Technology.
- Assist CHPC users in code configuration, porting and optimization, resolving scientific challenges relevant to the specific computational platform.
- Promote the use of HPC and scientific computing to South African research community, through formulating and implementing training events, large workshops, conferences, formalized lectures, and/or recognized national human capital development programmes.
- Collaborate with niche South African scientists to generate innovation that are of use to the research communities at large. Develop own research track record by delivering innovations and/or research output which can be adopted by wider computational research communities. Subsequently provide support towards the stakeholders who are making use of the innovations.

Qualification, skills and experience:

- Relevant masters or doctoral degree in Physics or Computer Science.
- Experience in provisioning grid computing resources.
- Relevant knowledge in computing for high-energy physics.
- Ability to work in world-wide international collaborations.
- Excellent interpersonal skills.
- Must have strong knowledge in operating HPC clusters that provide resources to computing grids like the WLCG, EGI or similar.
- Familiarity with linux system administration, including scripting and configuration management, and wide-area networking technology.
- Demonstrated ability to work in international, distributed teams.
- Should be proficient in C++, parallel programming and modern HPC platforms like GPUs or FPGAs. Should have experience in computing for high-energy particle or
nuclear physics, e.g. physics and detector simulation (HERWIG, PYTHIA, GEANT),
large-scale data acquisition systems, on- or offline reconstruction and particle tracking
algorithms, or data analysis.

- Candidates will be subjected to a series of competency test.

**Please note:** Applicants should include a cover letter and curriculum vitae (which
includes the contact details of at least three referees and a list of relevant peer-reviewed
journal publications or relevant material/solutions formulated. Each applicant may be
requested to complete competency test and psychometric evaluation relevant to the
individual job scope. The applicant will also be requested to conduct a public oral
presentation/lecture.

Should you meet the above requirements, please email your CV to jobapplications@csir.co.za
with your name and surname, position title and reference number on the subject line, (e.g.

**Closing date: 30 September 2015**

**PLEASE NOTE THAT FEEDBACK WILL BE GIVEN TO SHORTLISTED
CANDIDATES ONLY.**

Should you experience any problems in submitting your application, please contact the CSIR Recruitment Centre at Recruitmentqueries@csir.co.za. Please do not submit your application to this mailbox.

The CSIR is a responsible employer; we have put measures in place to ensure that equity is implemented such that it best
serves the interests of the organisation and South Africa as a whole. This speaks to the CSIR’s commitment to the
Employment Equity Act of 1998. By applying for this position at the CSIR, the applicant understands, consents and agrees
that the CSIR may solicit a credit and criminal report from a registered credit bureau and/or SAPS (in relation to positions that
require trust and honesty and/or entail the handling of cash or finances) and may also verify the applicant’s educational
qualifications and employment history. The CSIR reserves the right to remove the advertisement at any time before the
stated closing date and it further reserves the right not to appoint if a suitable candidate is not identified.