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.

Doctoral Studentships (X4)

About the job:

CSIR Modelling and Digital Science is an operating unit with three competency areas focusing on Advanced Mathematical Modelling, Information Security, as well as Mobile Intelligent Autonomous Systems. The unit assists in the CSIR’s drive to strengthen Science, Engineering and Technology outputs and to develop human capital through a studentship programme for Master’s and Doctoral studies based on the research work done at the CSIR under the co-supervision of a CSIR expert.

The information security group is concerned with processes, methodologies and techniques used to protect information from unauthorized access. The major drive towards the establishment of this competency revolves around the need to develop a capability on information security systems. This is also driven by the need for research and development of technologies that can be deployed locally.

The Information Security Group focuses on four research areas, which are complementary to each other. The areas are Biometrics, Smartcard, Data mining and Network Security.

Research topics:

Applicants will be expected to conduct research towards a higher degree (Doctoral) in the following fields, with particular emphasis on:

Biometrics: X1

- Fingerprint recognition systems – fingerprint patterns as a biometric.
- Child fingerprint recognition algorithms.
- Iris recognition systems – the iris of the eye as a biometric.
- Face recognition systems – facial characteristics as a biometric.
- Biometric matching models.
- Evaluation models for multi-modal biometric.

Network Security: X1

- Research into network vulnerability assessment tools.
- Research into network security enhancement.
- Research into cryptographic tools.
- Device authentication framework.

Smartcard: X1
• Open source Java Virtual Machine (JVM) for smart cards.
• Open source card management system.
• Smartcards attacks and counter measures.
• Reverse engineering java card applets.
• Secured point of sale terminal design.
• Performance evaluations in smartcard applications or hardware chips.

Large Data Sets (Pattern Recognition): X1

• Forensics fraud detection tools.
• Biometric feature extraction framework.
• Biometrics performance evaluation models.
• Network security evaluation models.

Requirements:

• MEng or MSc in the following fields:
  o Electrical, Electronic or Computer Engineering
  o Mechatronic, Mechanical or Biomedical Engineering
  o Computer Science
  o Applied Mathematics
  o Statistics

• The ideal candidates will be enthusiastic and self-motivated individuals who take ownership and initiative.
• The ability to work well under pressure as part of a team, is essential.
• The successful candidates must be willing to work in a research environment that serves both local and international clients and stakeholders.
• Prior working experience on projects that involve extensive programming on open source environment(s) will be advantageous.
• Basic knowledge of biometric recognition systems will be advantageous.

Applicants must attach the following documents:

• Certified copies of the applicant’s latest academic results or transcript.
• Certified copies of tertiary qualifications.

Applicants must be South African citizens.

Should you meet the above requirements, please go to the URL indicated below in order to apply; select the position reference number 302290, complete the application form and attach your CV: www.csir.co.za/apply.php

Closing date: Open-ended

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 gives preference to candidates who meet the job requirements and who will add to the cultural and gender diversity of the organisation. 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 not to appoint if a suitable candidate is not identified.