



## 2019 TELKOM BURSARIES FOR POSTGRADUATE STUDIES

PhD and MSc (Eng)/MSc

CENTRE OF EXCELLENCE (CoE) FOR BROADBAND NETWORKS AND APPLICATIONS  
UNIVERSITY OF CAPE TOWN

THIS IS A CALL FOR ALL INTERESTED STUDENTS TO APPLY FOR A TELKOM POSTGRADUATE BURSARY TO PURSUE DEGREES BY RESEARCH AT THE CENTRE OF EXCELLENCE FOR BROADBAND NETWORKS AND APPLICATIONS AT THE UNIVERSITY OF CAPE TOWN.

***ELIGIBILITY: STUDENTS SHOULD BE SA CITIZENS OR PERMANENT RESIDENTS IN THE REPUBLIC OF SOUTH AFRICA AND SHOULD BE CURRENTLY REGISTERED OR INTENDING TO REGISTER FOR AN MSc (Eng)/MSc OR PhD IN 2019.***

STUDENTS NEED TO APPLY BY SENDING *ELECTRONIC COPIES* OF THEIR FULL ACADEMIC TRANSCRIPTS AND CONCISE CVs TO THE ATTENTION OF:

*Ms. Maria Nkomo at [nkomomd@telkom.co.za](mailto:nkomomd@telkom.co.za) (0123112161)*

Note: Mandatory that you copy in Mr. Gys Booysen at [booysegj@telkom.co.za](mailto:booysegj@telkom.co.za) or [GysB@openserve.co.za](mailto:GysB@openserve.co.za) (phone: 0123111952) and the Head of the Centre of Excellence for Broadband Networks at UCT (Neco Ventura) at [neco@crg.ee.uct.ac.za](mailto:neco@crg.ee.uct.ac.za) or [neco.ventura@uct.ac.za](mailto:neco.ventura@uct.ac.za) (0216502804)

### **CLOSING DATE FOR SUBMISSIONS IS FRIDAY 15 OCTOBER 2018**

TELKOM will be conducting interviews in the Department of Electrical Engineering at the University of Cape Town to prospective bursars in October 2018 (date to be announced).

**NOTE:**

1. Students completing their Undergraduate 4 year degree in 2018 will be considered for Masters.
2. Masters and Doctoral students in the Centre for Broadband Networks are encouraged to apply. TELKOM will consider students who have already started with their postgraduate degree; an appropriate duration will be proposed.
3. Bursaries carry a "work back" period equivalent to the duration of the bursary
4. No employment at the end of the bursary support period is guaranteed but Telkom will have first option to offer employment.
5. Applicants should not have current bursaries with employment obligations.
6. 24-month bursary of R10000 per month for a Master student & 36-month bursary of R12000 per month for a Doctoral student will be awarded to the successful applicant.

A handwritten signature in black ink, appearing to read "Neco Ventura".

Neco Ventura  
Head: CENTRE FOR BROADBAND NETWORKS  
Department of Electrical Engineering,  
University of Cape Town  
Date: 2018 08 30



## PhD and MSc (Eng) RESEARCH AT THE CENTRE FOR BROADBAND NETWORKS AND APPLICATIONS UNIVERSITY OF CAPE TOWN

The traditional approaches to networking are starting to show their limitations when it comes to the requirements imposed by new and future applications and services. Recently, networking has become the focus of a huge transformation enabled by new models resulting from virtualization and cloud computing. This has led to novel architectures supported by Software Defined Networks (SDN), Network Function Virtualization (NFV), cloud, edge and fog technologies.

The Centre continues to evolve with the establishment of intelligent Internet of Things (IoT) Services and Fog Computing Research initiatives to foster out of the box thinking on what can be done when integrating Fog Computing, IoT, Machine Learning, Big Data, Sensors, Appliances and fifth Generation (5G) mobile communication networks. We will be tapping into machine learning to optimize the network architecture, control and management, leading to more automation in network operations.

The vision of the future 5G system corresponds to a highly heterogeneous network, including multiple Radio Access Technologies, multiple cell layers, multiple spectrum bands and multiple type of devices. The adoption of SDN/NFV architectural frameworks enables the creation of more intelligent networks that are open, programmable and application aware.

We seek to promote an integrated Academia-Industry research roadmap to develop core and access technologies, prototyped demonstrations and Intellectual property directly related to Industry needs.

### Key research questions:

- How to promote the integration of IoT sensors and distributed AI on Fog Computing environments;
- How to support service orchestration of distributed AI in Fog Computing considering the requirements for local intelligence, limitations of computational resources, networking and communications and the local environment;
- What are the issues of security and privacy in Intelligent IoT Services and how to develop strategies for distributed analysis and security measures?
- What multiple access techniques for several scenarios are envisioned to be supported by 5G networks?

### The Objectives are:

- To evolve our existing machine type communication framework into a 5G NFV-enabled experimental testbed capable of instantiating and supporting vertical applications and open source technologies;
- To develop open source Management and Orchestration (MANO) functionality and tools for experimental architecture instantiation;
- To develop intelligent radio access techniques for 5G networks;
- To develop open software and APIs for rapid prototyping and inclusion of new building block functionalities;
- To enable demonstrations in an open reference platform;

Visit the Centre for Broadband Networks and Applications website (under construction) at <https://www.cbn.uct.ac.za> to view past, current projects and research activities at the PhD and MSc levels.