Press Release

University of Cyprus

Communication Office
Promotion and
Development Sector

Telephone: **22894304**
Email: **prinfo@ucy.ac.cy**
Website: www.ucy.ac.cy/pr

BY:

24 JULY 2017

BEST PAPER AWARD FOR KIOS RESEARCHER

An innovative framework for the control and the management of telecommunication networks

The best paper award was given at a major international scientific conference to the KIOS Research and Innovation Center of Excellence Researcher Dr Tania Panayiotou and her Cyprus-based collaborators. The paper presented research to improve the performance of optical networks which could potentially reduce the operational and capital expenditure for telecommunication network providers.

This award demonstrates and proves the high-quality research which is undertaken in Cyprus, providing international visibility and recognition for the research performed in the field of Information and Communications Technologies (ICT) and in particular in the area of Critical Infrastructure Systems.

The award winning paper entitled "A Probabilistic Approach for Failure Localization" was presented at the 21th IEEE International Conference on Optical Network Design and Modeling (ONDM) in Budapest, Hungary, in May 2017. This IEEE International Conference on Optical Network Design and Modeling addresses cutting-edge research in established areas attracting significant interest from several international leading research centers from universities and industry.

The conference focuses on novel and emerging topics in the areas of optical networking, optical systems and optical network architectures, wireless optical networks, photonic integrated networks, as well as control and management developments in optical networks. The award-winning paper addresses the critical problem of fault localization in transparent optical networks. In such networks localizing network failures (i.e., fiber cuts, equipment failures, etc.) is not trivial. Usually, upon a failure incident, network technicians are called for real-time localization of the failure using monitoring data. The mean time to repair (MTTR) the failures can vary from several hours to days depending on where the failure actually occurred. Reducing the MTTR is of critical importance as network failures may severely affect the network availability and can cause severe service disruption.

The novelty of the award-winning paper lies in an innovative framework for localizing network failures in an automated fashion, with the use of advanced statistical machine learning techniques. The proposed

approach can be trained on historical datasets that describe past failure incidents for fast and accurate localization of current failure events. This approach minimizes human intervention and/or the use specific monitoring equipment. This novel framework can be used by network operators to reduce the MTTR, the human effort required, and the number of monitoring equipment. Therefore, network providers could reduce their Capital and Operational Expenditures (CAPEX/OPEX) related to the fault localization procedure.

The research was a joint effort amongst researchers based in Cyprus. The award winning team includes Dr Tania Panayiotou (Research Fellow at the KIOS Research and Innovation Center of Excellence), Dr Sotirios Chatzis (Assistant Professor, Department of Electrical Engineering, Computer Engineering, and Informatics at the Cyprus University of Technology), and Dr Georgios Ellinas (Associate Professor, Department of Electrical and Computer Engineering at the University of Cyprus, Faculty member of KIOS Research and Innovation Center of Excellence).

End of announcement