

CONNECT, SFI Research Centre for Future Networks & Communications

A World
Leading SFI
Research
Centre



CONNECT is the Science Foundation Ireland Research Centre for Future Networks and Communications. Its mission is to research and develop innovative solutions for the communications challenges facing society today. The Internet of Things (IoT), 5G networks and new broadband architectures are the centre's main areas of focus.



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Communications networks are now part of our critical infrastructure, enabling a vast range of applications that we have all come to rely on. These networks must now evolve to enable services that one day will also become ubiquitous, from augmented reality to autonomous vehicles. At CONNECT, we design the next generation of networks that automatically respond to the services that run on them.

Over 250 CONNECT researchers across 10 Higher Education Institutes are supported by €50 million of funding from the Science Foundation Ireland Research Centres Programme, the European Regional Development Fund and industry partners.

Research Areas

CONNECT researches future networks, Internet of Things, 5G and beyond from the following perspectives:

- › Dependable Networks (supporting mission-critical applications, leveraging edge computing)
- › Sustainable IoT (scalable solutions for integrated energy harvesting, storage, and power management, reusable platforms, security and resiliency)
- › Link Performance (Mgb/s wireless & wireline transmission, flexible mmWave, photonic networking and in-body biological communications)
- › Data-driven Optimisation & Management (proactive network management, distributed ML, actionable metrics, explainable AI)
- › Customised Networks (end-to-end across shared networks to support verticals, slice monitoring, trust)
- › The New Operators (frameworks for collaboration, business models, regulation)

CONNECT researchers have vast expertise in test and experimentation in these areas.

Research Programmes

CONNECT's 250 researchers tackle issues of particular interest to industry. Their work includes the development of:

- › Energy-efficient networks, and ultra-low-power smart sensors, and storage
- › Programmable network substrates for multi-stakeholder ecosystems
- › Extreme-sharing systems for Cloud-RAN architectures
- › Network-aware, high performance and mm-wave radio transceiver architectures for 5G
- › Quality-of-experience management for sparse, bursty data networks

CONNECT is leading Enable, a new €14.5 million IoT research programme to connect communities to smart urban environments. It focuses on buildings, environment, mobility, and networks.

Facilities

- › Pervasive Nation – Ireland's Internet of Things testbed using a Low Power Wide Area Network (LPWAN). See www.pervasivenation.ie
- › Ireland's largest public data centre at TSSG, based in Waterford Institute of Technology
- › Indoor/outdoor wireless testbeds for cellular, Cloud-RAN and SDR
- › RadioSpace - a national facility at Maynooth University for the development and testing of new radio technologies for the Internet of Things and 5G.

Industry and Commercialisation

CONNECT works with a wide range of industry partners on targeted projects in the areas of Internet of Things, future cellular (5G and beyond), next-generation broadband, software-defined networks and cloud-based services. CONNECT's expert researchers are dedicated to delivering outstanding results at the pace and standard demanded by industry.

HOST INSTITUTION



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

PARTNER INSTITUTIONS

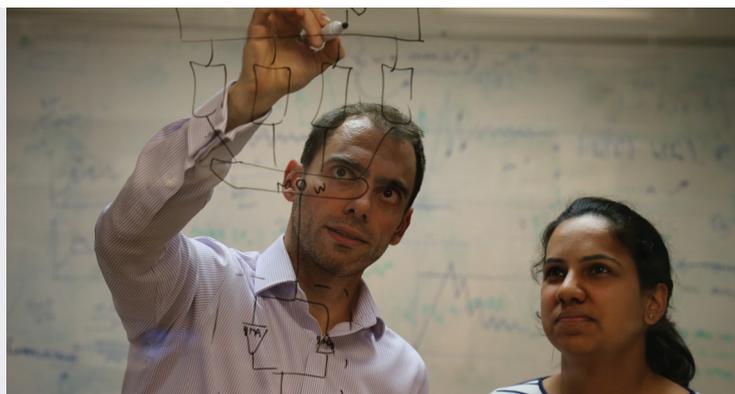


Industry partners include:

- > Accessgreen
- > Adesto Technologies
- > Aeronet Global
- > Ampleon
- > Analog Devices
- > Arris
- > ARUP
- > Benetel
- > BlueMetrix
- > CISCO
- > Civic Integrated Solutions
- > Cork City Council
- > Cork County Council
- > Dell EMC
- > DenseAir
- > Digital Canopy Technologies Ltd
- > DLRCCC
- > Dublin City Council
- > Dun Laoghaire Rathdown Co. Co.
- > Ericsson
- > ESB
- > Google
- > Granahan McCourt
- > Huawei
- > IBM
- > Intel
- > Johnson Controls
- > MACOM
- > Nokia
- > Nonlinear Systems
- > Rambus
- > Real Wireless
- > Rivada Networks
- > Routematch
- > S3 Group
- > Silent Sensors
- > Softbank
- > Synopsys
- > Taoglas
- > TrackNStop
- > Tyco Ireland Ltd
- > UTRC
- > Westire Technology Ltd
- > Workz
- > Xilinx
- > Zeto

Education and Public Engagement:

CONNECT has a strong commitment to education and public engagement. A key focus of this outreach is 'STEAM' - using the Arts and creative practices in the traditional formula of science, technology, engineering and mathematics. CONNECT also uses media (international, national, local and social) to engage with the public on features of the centre's research. CONNECT researchers also engage with the public at festivals and events such as the National Ploughing Championships and also with visits to schools.



Key Contacts

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Professor Luiz DaSilva is the Director of CONNECT and Professor of Telecommunications at Trinity College Dublin. His expertise is in wireless communications and networks. He has published widely in these domains and is a Fellow of the IEEE for his contributions to cognitive networking and resource management in wireless networks. He has a wide range of collaborations in Europe, the US, Latin America, and Asia.

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