Catapult Open

Catapult Researchers in Residence (RiR) Programme: Opportunity Description

5G and AI for network optimization

Name of the Catapult(s)	Satellite Applications Catapult and Digital Catapult
Location(s)	Harwell Campus and London, or other Digital Catapult Local Centres
Description of the Catapult(s)	The Catapult centres are a network of not for profit world-leading centres designed to transform the UK's capability for innovation in specific areas and help drive future economic growth. Digital Catapult accelerates business access to new digital markets and carries out applied research and development to identify new applications of emerging technology, helping scale up digital companies and supporting traditional businesses to make better use of new and emerging digital technologies. https://digital.catapult.org.uk/ The Satellite Applications Catapult fosters growth across the UK industry through the exploitation of space by enabling businesses, energising new and existing markets as well as empowering new terrestrial and satellite technologies. https://sa.catapult.org.uk/
Description of the Challenge	This challenge is aimed towards researchers interested in, or who want to understand, the crossover between the Digital Catapult and Satellite Applications Catapult interests, to create a paradigm shift within endless possible markets and application areas. An example of projects we are interested are described below. We will however consider all projects that fall within the focus of both catapults: 5G and AI for network optimization: The next generation networks (including 5G) is envisaged as an interconnection of several types of networks, ranging from low power networks, e.g. LoRaWAN, NB-IoT to satellite and terrestrial mobile networks (e.g. cellular). This diverse network-of-networks is required to address the highly demanding aspirations for support of new customers from vertical industries (e.g. e-health, automotive, energy). However, such complex system poses big challenges for service providers (including network operators) in the 5G eco-system on how to balance investments, user experience and profitability. The service profiles and data generated by the end-user application and the networks themselves provide insightful information for network optimisation. Using AI techniques such as machine learning could assist in network optimization during the operational phase as well as planning phase. This would result in an agile system able to deliver and meet the dynamic demands of the different verticals. As part of the development from the Satellite Applications Catapult the Westcott Business Incubation Centre (BIC) has been set up with the mission to encourage the development of new companies working in the strategic

growth areas of rocket propulsion, 5G communications, drones and other autonomous systems.

The Westcott BIC will work together with existing expertise on the site and other planned investments, including the Westcott 5G Step-out Centre and the Westcott Innovation Centre.

Please contact us to discuss you project idea before you submit your application. This will ensure that it will be within the focus areas of both Catapults.

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Researcher Specification	For this call, we are following EPSRC Eligibility Criteria.
Other Details	The aims of the Researchers in Residence (RiR) programme are to build connections, support pathways to impact, and knowledge exchange between academia and the Catapult centres. The output of this residency would include a report, and depending on the project, could include a prototype system to demonstrate the principles of a larger project.
Closing Date for Applications	17:00 (GMT) Friday, 21 September 2018