PhD Call for Applications

(Submission Deadline: 8th of April 2022)

1. The PhD Programme
The University of York and the South-East European Research Centre (SEERC) announce the opportunity for qualified candidates to read for a PhD Degree that combines high-quality UK studies and a unique research infrastructure in South-East Europe.

The PhD candidates will be enrolled at the University of York (UK) while being hosted and supported by SEERC for the duration of their studies. Projects will be jointly supervised by academics at both SEERC and University of York. Upon successful completion of their studies, a PhD researcher will receive their degree from the University of York. Research projects are offered in a broad range of areas including Computer Science, Language and Linguistic Science, Management and Psychology studies.

The University of York and SEERC will be offering a small number of fee waiver scholarships for successful candidates. The fee waivers will be offered to applicants with outstanding academic records and the selection process is highly competitive. Please note that fee waivers are only given to candidates applying for full time studies. More information on the terms of reference of the fee waivers can be found at the following link:

https://www.seerc.org/new/doctoral-programme/studentships

Full Time programme. The duration is 3 years (plus a one year continuation year if required) and it requires full time commitment on the part of the PhD researcher, which means that one would have to be physically present at SEERC premises located in Thessaloniki.
2. Research Topics
We will accept applications on the following topics:

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Please see Section 8 for full details of each project proposal.

3. Entry Requirements
Applicants for the programme must have an excellent academic record (normally a relevant Degree with Distinction). In addition, relevant work experience, a Masters degree, research training, and publications will also be considered.
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The University has the following minimum entry requirements:

- A relevant first Degree (2.1 and above or equivalent)
- Proof of English Language Qualifications

Some departments may have entry requirements over and above the University minimum and prospective students should check the relevant departmental website at the University of York for details.

Please see the English language requirements for prospective students at the University of York:

https://www.york.ac.uk/study/postgraduate-research/apply/international/english/

4. Application process

We accept proposals from qualified candidates for full-time study. How to apply:

1) Contact the supervisors of your chosen topic to register your interest, and to ensure that they will be able to effectively support your application.

2) Check that you are eligible (see section 3 above).

3) Submit the following documents in pdf format (with files labelled ‘Surname Title of the Document’ e.g. ‘ArnoldPersonalStatement.doc’):
   - Academic transcripts
   - Contact details for two academic references (Guidance for references (PDF, 57kb))(to be contacted only if you are shortlisted)
   - Evidence of English language ability
   - A personal statement (1 A4 page) outlining:
     a) Why you are interested in your chosen project
     b) What motivates you to pursue PhD study
     c) What is your research experience and how does your skillset match the requirements for your choice of project
     d) Your career aspirations (after you finish your PhD)
     e) Details of contact you have had with the project supervisors
   - an updated CV (max 2 A4 pages)- including training and qualifications with grades (and predicted grades if still studying), work experience, publications, prizes
   - a Research Proposal
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The **Research Proposal** should be a maximum of 2000 words excluding references (max 8 pages) and should include the following:

a) **Title of the proposed project**

b) **Reference to one of the Specific Research Topics (section 6)**

c) **Does your project have links to external partner/s (e.g. industry)? If so, then outline them.**

d) **Background to research topic**

This section needs to introduce the topic before discussing it in relation to wider academic debates. The section might seek to situate the topic and highlight why the issue being addressed is important - this should be identified and justified as an important/interesting academic issue not simply in terms of current media/political/popular interest.

e) **Specific problem(s) to be examined**

In this section the discussion of the topic needs to be more specific. The focus should include reference to the framework or conceptual approach that the research might seek to draw on. Also the discussion is likely to highlight and make reference to parallel, comparable and complimentary research. The aim of this section is essentially to set up the area of research specifically. The challenge is to ensure that the proposed research has a substantive empirical and conceptual focus, both of which are suitably grounded in contemporary academic debate with appropriate citations to relevant literature. By the end of the section a gap in existing knowledge needs to be highlighted and the research questions(s) that the thesis will address be stated.

f) **Methods of research proposal, plan and timetable of work**

The research methods section needs to highlight what methods will be used and how, with an appropriate level of detail. In the case of quantitative research the data set to be accessed and used should be identified and the nature of proposed statistical analysis detailed. In the case of more qualitative research, again the methods should be elaborated and proposed stakeholders/populations to be interviewed/surveyed should be detailed. Due consideration should be given to accessing relevant data/interviewees. Proposals should also highlight ethical issues and potential limitations.

g) **Resources available and required (if any)**

h) **Any other information in support of your proposal**
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i) The proposal should include correct literature citations and a brief bibliography

5. Selection process
The selection process will involve one or more interviews (to be contacted via zoom and/or at SEERC premises in Thessaloniki) with academics from York and SEERC. The interviews will take place in the last two weeks of May.

Note that all candidates who will be selected for the interview phase will be asked to provide official documentation proving their CV claims (education, past employment etc.)

All applications should be submitted by 8th of April 2022 via email to SEERC at phd_admin@seerc.org

(PLEASE USE THE “SEERC-YORK PhD PROGRAMME APPLICATION” AS THE SUBJECT OF THE EMAIL)

6. Equality, Diversity and Inclusion
University of York and SEERC are committed to recruiting doctoral scholars regardless of age, ethnicity, gender, gender identity, disability, sexual orientation or career pathway to date. We understand that commitment and excellence can be shown in many ways. We welcome applicants from all backgrounds, particularly those underrepresented in postgraduate research, who have curiosity, creativity and a drive to complete innovative research.

7. Your data and privacy
Data relating to your application will be handled in line with the CITY College, University of York Europe Campus PhD applicant privacy notice. CITY College, University of York Europe Campus will share your application and any content disclosed through email or other correspondence or online interviews with the University of York to help make a decision on your application. Information provided to supervisors to discuss your application may also be shared between the University of York and CITY College, University of York Europe Campus to help manage your enquiry.
8. Research Topics - full descriptions

**Topic 1: Examining Consumer Sustainability Motives for Engaging in Food Trends**

**Description:**
Food and eating behaviour has transformed over the last 10 years with a greater interest in veganism, vegetarianism, and reduction of red meat (Salehi, Carmona and Redondo, 2020) with consumers increasingly changing their diets towards non-meat or replacement-meat products (Bryant, 2019). This diet shift has led to a thriving meat alternative market worldwide (theVeganSociety, 2021). For many consumers this trend is motivated by health but it is also clear that other motivators are at play including animal protection, religious beliefs, ethical reasons, taste and aesthetics (Janssen, Busch, Rödiger and Hamm, 2016). In a study by Janssen et al. (2016), 46.8% noted environment related motives when it came to consumers choosing a vegan diet. However, environmental and sustainability issues as motives to alternative diets have not been widely studied. Vegan, vegetarian and reduced meat/dairy diets have clear environmental impacts with vegan diets considered the best for the environment due to having the lowest level of GHG emissions (Chai et al, 2019). But how much does this affect, drive and motivate consumers to take up and maintain these types of diets? Do consumers consider all three pillars of sustainability (social, economic, environmental) in their choice of diet (Purvis, Mao and Robinson, 2019)? Do consumers consider local, national and/or international environmental issues within their diet choices? What is the impact of marketing in these diet decisions? How can these motivations be harnessed to both encourage healthy and sustainable eating practices? What may be the implications/dilemmas for marketing managers?

This project brings together researchers from both the CITY College University of York Europe Campus and York campuses with an interest in food, sustainability and consumption. Due to the cross Europe nature of the team and university the project has the possibility of being situated and studied across a number of European contexts and hence a cross-cultural study may be possible.

**Scope of Research:**

1. An exploration of the role of sustainability and environmental motivations in choosing and maintaining vegan, vegetarian or other reduced meat/dairy diets in the extant literature;
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2. A deeper investigation of these sustainability motivations using interviews or other relevant methodologies;
3. An understanding of how sustainability motives can encourage healthy and sustainable diets.

Methodology proposed:
While we welcome candidates with interests in a range of different methodologies we particularly welcome PhD students who would be interested in tackling the project from a qualitative perspective.

Further Reading:

Supervisors:
Dr Ariadne Kapetanaki is a Lecturer at The York Management School at the University of York, UK.
Prof. Victoria Wells is a Professor and Deputy Dean of The York Management School at the University of York, UK.
Dr Alexandros Kapoulas is an Associate Professor and Research Director of the Business Administration and Economics Department at CITY College, University of York Europe Campus.
Topic 2: Talent management and service quality

Description:
Talent management plays a key role in the provision of service quality and helps to ensure a consistent customer service experience. Talent management is therefore central to the attraction and continued retention of a high performing and high potential workforce (Collings et al., 2019; Glaister et al., 2018). However, while MNEs apply IHRM policies and practices to leverage talent management on an international scale, research has highlighted the role of local managers and institutional shapers that affect the actual application of talent management practices (Bhatnagar & Budhwar, 2019; Glaister et al., 2021; Latukha, 2018). Managers have their own ideas of what talent management means in practice; this may be at odds with their headquarters. Further, institutional context shapes the parameters and the success of any talent management programme and the expectations of those workers deemed ‘talented’ (Gallardo-Gallardo et al., 2017, 2020; Thunnissen et al., 2013; Wiblen & McDonnell, 2020).

The complications of talent management are also exacerbated by the nature of work within the service sector and the day-to-day experience of employees. While employees might be expected to deliver high-end service, their working conditions might not align, and such conditions may hinder the premise of talent management programmes - a focus on growing one’s own and retaining and developing talent within the organization. Given the core-periphery nature of these working contexts, questions arise as to who should be considered talented and how should career paths be structured and opportunities for development be implemented (Cui et al., 2018; Ehrnrooth et al., 2018; García-Buades et al., 2016; Zheng, 2009). The changing context of work, caused in part by the global pandemic, has created challenges for the service sector and the extent to which it can deliver a consistent customer experience and a commensurate employee experience. Yet the pandemic is but one way in which the service landscape is changing. These changing contexts represent a challenge for talent management within the high-end service sector.

This project brings together researchers from both the CITY College University of York Europe Campus and York campuses with an interest in talent management and service quality. Due to the pan-European nature of the team, the project has the possibility of being situated and studied across several European contexts and hence a cross-cultural study may be possible.
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The project area is aligned with the strategic vision and mission of the University of York. It sits within the research theme of Environmental Sustainability and Resilience, as well as Health and Wellbeing, and aims to have impact beyond academia, influencing corporate strategy and examining the policy implications of sustainable, human capital development within, what is becoming, an increasingly precarious sector. Further, the project represents an inter-departmental, international collaboration. The scope of the research is given below, alongside a list of key issues. Our aim is for prospective PhD candidates to propose their own research questions considering the research scope and key issues identified.

Scope of Research:
- Talent management
- Comparative HRM
- Service industry
- Quality service

Key issues:
- Talent management scope and scale
- Employee impacts of talent management
- Leadership challenges in the service sector
- The alignment of employer branding, organisational culture and talent management
- The shifting role of the HR function
- The changing context of work and its impact on the provision of service quality

Methodology proposed:
We welcome PhD researchers who can develop a proposal that responds to the issues highlighted. You should have an appetite for developing cross-cultural research and preferably a background or interest in the people impacts of high-end quality services and the challenges these pose for talent management conceptualization and practice.

Further Reading:
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Supervisors:

**Dr Alison J. Glaister** is a Senior Lecturer at The York Management School at the University of York, UK.

**Prof. Leslie T. Szamosi** is a Professor and Director of the MBA of the Business Administration and Economics Department at CITY College, University of York Europe Campus.

**Dr Giovanni Oscar Serafini** is an Assistant Professor of the Business Administration and Economics Department at CITY College, University of York Europe Campus.
Topic 3: “Belt and Road Initiative (BRI)”: The FDI-related Economic impact on the OBOR involved countries of Central, Eastern and Southeastern Europe

Description:
The grand strategy of China presented through the Belt and Roald Initiative (One Belt One Road -OBOR) is a long-term vision from 2013 and historically dates back several centuries. This project encompasses 30% of global Gross Domestic Product, involves 62% of the world’s population and spreads through 70 countries in Asia, Africa and Europe mainly via outward FDIs (Yu et al, 2019; Fan et al, 2019). This strategical project could involve several micro-strategies and various regions, allowing China to expand its influence and its projection of power (Pavlicevic, 2018). Given the magnitude of resource mobilization, the investment in financial and political terms, this Chinese strategic project is filled with complex and contingent types of risks.

The One-Belt-One-Road (OBOR) project requires the modification of the global financial structures, rearrangements of the security and institutional landscapes both inside China and in its wider Eurasian perimeter, while it implies a different economic model than the ones observed in the so-called Western democracies. The Chinese model may have a certain appeal in developing countries, especially in times of transition, either economic or political, like the one seen nowadays (Bremmer, 2019). Combined with the Chinese financial and economic fragility, the aggregate position of OBOR project will definitely bring challenging times ahead, despite the reassuring promises given to political and business leaders around the globe.

Since China today is a global challenger (Gisiger & Rogoff, 2018), in technological and financial domains, the OBOR initiative presents the highly effective platform for the analysis of the global economic challenges that arise within the context of major economic developments and colossal strategic projects. The geographical area that this project primarily aims at, is Europe and more specifically Central, Eastern and Southeastern Europe. This particular area, which in the past largely belonged to the area of the Centrally Planned Economic Paradigm, has received after its transition to the Open Market Paradigm, significant FDIs originated from the West. Now within the context of the OBOR project, the particular area, among others of the same project, already receives and will receive further significant Chinese FDIs (Vangeli, 2017), which as in the past with the Western ones, will have certain spillover effects (Vangeli, 2020; Pavlichevic, 2018). For this reason, the focus of the proposed research is on the related developments taking place on this specific geographical area.
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Scope of Research:
This project will focus on the following research ideas:

- The macroeconomic spillover effects of the FDIs from the OBOR initiative and of the Western origin in Central, Eastern and Southeastern Europe.
- The microeconomic impact of the FDIs in Central, Eastern and Southeastern European countries participating in the OBOR initiative.

Methodology proposed:
The research project will be tackled using advanced quantitative methods as well as case studies by using macro/microeconomic and financial data about Central, Eastern and Southeastern countries participating in the OBOR initiative.

Further Reading:
Pavlicevic, D, (2018). “A Power Shift Underway in Europe? China’s Relationship with Central and Eastern Europe under the Belt and Road Initiative”, in Mapping China’s ‘One Belt One Road’ Initiative, Palgrave, https://doi.org/10.1007/978-3-319-92201-0
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Supervisors:

Prof. Mark Freeman is a Professor and Dean of The York Management School at the University of York, UK.

Dr Adriana Cornea-Madeira is a Senior Lecturer at The York Management School at the University of York, UK.

Dr Nick Huberts is a Lecturer at The York Management School at the University of York, UK.

Dr Sotirios Bellos is an Associate Professor at the Business Administration and Economics Department at CITY College, University of York Europe Campus.

Dr Petros Golitsis is an Assistant Professor at the Business Administration and Economics Department at CITY College, University of York Europe Campus.
**Topic 4: Reactive Code Generation from Modular Software Models**

**Description:**
Model-based software engineering (MBSE) is the practice of elevating domain-specific models to first-class artefacts of the software engineering process, using such models to analyse, simulate and reason about properties of the system under development, and eventually auto-generate (a part of) its implementation. MBSE is used extensively in organisations that produce business- or safety-critical software (e.g. in the aerospace, automotive and robotics industries), where defects can have catastrophic effects or can be very expensive to remedy (e.g. require large scale product recalls).

In a model-based software development environment, code generators are used to transform software models (e.g. structural models, behavioural/state machines, Simulink control models) to working software code. As models grow in size, re-running a code generator in its entirety for every small change in its input model is wasteful and can significantly slow down the software development process. To address this problem, previous work [1, 2] has proposed techniques for incremental/reactive execution of model-based code generators. To achieve incrementality with these techniques, a code generation engine needs to be able to tell what changed in the model (at a very fine and precise level), which can be quite expensive in its own right and can quickly become a bottleneck for large monolithic models.

The aim of this project is to design and implement new intelligent reactive model-based code generation techniques that are optimised for modular models which are split over multiple, smaller interconnected files [3, 4] (as opposed to single-file monolithic models), and exploit facilities present in contemporary software development workstations (e.g. multi-core processors, solid-state drives).

**Further Reading:**

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Antonio Garmendia, Esther Guerra, Juan de Lara, Antonio García-Domínguez, Dimitris Kolovos, Scaling-up domain-specific modelling languages through modularity services, Information and Software Technology, Volume 115, 2019, Pages 97-118, DOI: https://doi.org/10.1016/j.infsof.2019.05.010

**Supervisors:**

Dimitris Kolovos is a Professor of Software Engineering in the Department of Computer Science at the University of York, where he researches and teaches automated and model-driven software engineering.

Dimitris Dranidis is an Associate Professor and Head of the Computer Science Department of CITY College, University of York Europe Campus.
**Topic 5: Automated verification and self-adaptation of service-based applications**

**Description:**
Software applications are increasingly composed of third-party services available over the Internet. Reacting to failures of those third-party services by dynamically adapting the service consumer software becomes a key enabler for ensuring reliability, performance and other quality-of-service (QoS) requirements. Such requirements are especially significant in the setting of the “Internet of Services” or “Internet of Things”, where applications are increasingly composed of third-party services, which are not under the control of the service consumer. Accordingly, the services should be (re-)checked during the operation of the serviced-based application (SBA) to detect failures, thus triggering an appropriate response and reconfiguration.

There are many important challenges that need to be tackled to solve the problem of dynamically reacting to failures in SBA. The first problem is determining when to adapt, which is especially challenging in the presence of conversational services. A conversational service might fail in the middle of an invocation sequence, in which case adapting the software might be costly; e.g., due to the necessary state transfer to an alternative service. The second problem is the problem of adaptation itself; the SBA should be able to self-repair either by changing its internal behaviour or by replacing a constituent failed service with another candidate service. The third problem is the automated verification of the identified candidate service before its “hot” replacement.

Driven by recent advances in online testing of SBA, QoS requirement verification using runtime probabilistic model checking, and uncertainty quantification at runtime using machine learning, this PhD project will develop practical techniques that support (i) timely detection of service failures, thus enabling the SBA to be proactive; and (ii) verified SBA self-adaptation, thus providing guarantees that the SBA complies with its QoS requirements during operation.

**Supervisors:**
- **Dr Simos Gerasimou** is a Lecturer (Assistant Professor) at the Department of Computer Science at the University of York, UK.
- **Dr Dimitris Dranidis** is an Associate Professor and Head of the Computer Science Department of CITY College, University of York Europe Campus.
Topic 6: Formal Modelling of Artificial Emotions in Intelligent Agents

Description:
Intelligent agents are software artefacts that exhibit intelligent behaviour based on their beliefs about the environment they inhabit, their goals and the capacity (set of actions that they can perform to change their environment). Formal modelling refers to the use of mathematical notation (e.g. set theory and logic) that is able to create a rigorous and precise model of a software artefact, thus being able to prove its properties. In certain situations and applications, intelligent agents should be infused with artificial emotions that would stimulate emotional reactions to environmental stimuli. The aim of this research topic is to identify and develop a suitable formal method that would facilitate modelling of such agents. The research may involve investigation of modelling emotions, moods, personality and contagion, as they are researched in Psychology. The candidate should possess a good mathematical and/or Computer Science background that would help him or her to carry out the research more effectively. The domain for applying the modelling could be chosen by the candidate and can include emergency evacuation, agent-based economics, social network interaction etc.

Supervisors:
Dr Daniel Franks is a Reader at the Computer Science Department at the University of York, UK
Prof. Petros Kefelas is a Professor in Artificial Intelligence at the Computer Science Department at CITY College, University of York Europe Campus.
Topic 7: Semantic Models for Enabling the Distribution of Computation Tasks over Edge and Fog Resources

Description:
We are witnessing, today, an unprecedented explosion of connected devices – the Internet of Things (IoT) alone is nearing 50 billion devices – that produce data at an astonishing rate of 2.5 exabytes per day. Current solutions to processing and storing these data typically rely on cloud datacentres. Nevertheless, due mainly to the distance between cloud datacentres and data sources, such solutions cannot satisfy the stringent timing requirements of real-time applications, whilst they create major network traffic and cost issues.

A remedy to these challenges may come from the distribution of data processing tasks over Edge and Fog Computing resources that reside as close as possible to the data sources. Such a solution essentially replaces the traditional monolithic public cloud with a transient mesh of interconnected edge resources, micro local clouds, and private enterprise clouds.

Naturally, any such solution rests upon:

i) the ability to establish situational awareness, i.e. to perceive the QoS capabilities of fog and cloud resources in the vicinity of the data sources, and their evolution over time;

ii) the ability to accurately capture a requester’s QoS requirements with respect to application hosting and provisioning.

With respect to the first ability, this PhD project shall develop a semantic model for capturing all those knowledge artefacts that are required for establishing situational awareness in dynamic fog and cloud computing environments.

With respect to the second ability, this PhD project shall develop a semantic model for capturing all those knowledge artefacts that are required for articulating a requester’s QoS requirements and preferences regarding application hosting and provisioning. Such knowledge artefacts may be classified into:

i) those capturing a requester’s preferences – measured in terms of qualitative metrics (e.g., reputation, level of consumer satisfaction, etc.);

ii) those capturing quantitative aspects (e.g., processing power, availability, etc.);
iii) those capturing security-related aspects (e.g. access authorisation, data or privacy protection);

iv) those capturing data I/O aspects and, specifically, IoT interactivity details (e.g. IoT device ids, messaging protocols, etc.).

The PhD project shall also offer a mechanism for the automatic generation of **SLA templates** based on the semantic models above: one for describing QoS capabilities at resource providers, and one for describing the requesters’ QoS requirements and preferences. The mechanism will also attempt to match, by virtue of automated **semantic inferencing**, the two templates to determine whether the former satisfies the latter.

**Supervisors:**

**Dr Poonam Yadav** is a Lecturer (Assistant Professor) at the Computer Science Department at the University of York, UK

**Dr Simeon Veloudis** is an Associate Professor and Research Director at the Computer Science Department at CITY College, University of York Europe Campus
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**Topic 8: Automatic Detection of High Frequency Oscillations (HFOs) and their role to epileptogenicity.**

**Description:**
Epilepsy is a complex and heterogeneous neurological disorder which affects approximately 50 million people worldwide and 2.4 million people are diagnosed with epilepsy every year. (HFOs) have been proposed as biomarkers of the epileptogenic zone in the brain. So far, HFOs have been differentiated in two different groups: ripples, oscillations in the range between 80 and 250 Hz, and fast ripples, oscillations in the range between 250 Hz and 500 Hz. The main asset of HFOs is not only their clinical application for presurgical identification of the seizure onset zone (SOZ, which can be considered as a close topological estimate of the epileptogenic zone [2]) but also as a predictor of clinical outcomes of cortex resection. Even if visual inspection of intracranial electroencephalography (iEEG) signals for the detection of HFOs is still the gold standard, this method is not without pitfalls. In fact, it has been shown that it is highly time-consuming (10 min of 10-channel recording takes about 10 h), subject-dependent and prone to errors due to human factors. For these reasons, an automatic and objective HFO detection algorithm is urgently required. So far, there are a lot of approaches used for the automatic detection of HFOs (for a short review see https://doi.org/10.3390/brainsci10040220), but no-one of them has utilized the cortical propagation of HFOs in the delineation of Seizure Onset Zone (SOZ). This project will investigate whether HFOs show spatiotemporal propagation and assess the relevance of the earliest oscillations in relation to the SOZ and postsurgical outcome. If the results on this project indicate that this propagation is measurable and correct, i) they can help us build more accurate and fast classifiers by adopting graph theoretical knowledge, while ii) disrupting critical parts of such a network may be enough to stop seizures without the need of complete removal. If HFOs indicate the region from where seizures start, they may also behave like networks with both critical areas for network function and areas that may be involved later, possibly less relevant for the generation of these oscillations or of seizures. So, the main objectives of this project are:

1. To develop proper mathematical tools to model the Inter-regional High-frequency Connectivity.
2. To investigate if we can detect the nodes of the epileptic network that should be resected.
3. To simulate the behavior of the formed networks in the absence of the aforementioned nodes.
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Research questions:

1. Is the propagation of HFOs indicative of the SOZ?
2. Can we exploit this knowledge to build more accurate and faster classifiers?

Research methods: open iEEG data, effective connectivity, graph theory and machine learning.

Supervisors:

Dr. David Halliday is a Reader and the Chair of Research Committee of the Department of Electronic Engineering

Dr. Manousos A. Klados is an Associate Professor at the Psychology Department at CITY College, University of York Europe Campus
Topic 9: Understanding the key characteristics of successful entrepreneurs, in terms of leadership and wealth-creation, using neuroscience

Description:
Until now, assessing successful entrepreneurs, in terms of both leadership and wealth-creation, is done using self-reported quantitative measures as well as qualitative approaches like interviews. The self-reported measures, as the qualitative assessments, try to quantify mental skills that are common between successful entrepreneurs as well as personality traits, assuming them as good indicators of success. The main problem with this is that someone can consciously cheat and mislead so the self-reported measures as well as the interviewers. Our aim is to develop a model which will be based on features that cannot be consciously manipulated by the respondent. Towards this direction, neuroscience has an emerging role, since someone cannot consciously change/manipulate his brain activity. Thus, we propose to shift our attention from behavioural (can be easily manipulated) to neuroscientific (cannot be manipulated at all) observations. This is feasible, since neuroscience has investigated, independently from leadership, all the cognitive and affective skills (like increased stress-tolerance, attention, combined thinking, creativity, emotional stability, motivation, problem solving, decision making, cognitive flexibility etc.), that are under investigation by the aforementioned behavioural assessment in the context of exploring a potential successful entrepreneur. Our approach has a solid base, since the aforementioned independent neuroscientific research has resulted to specific brain patterns (neuromarkers) for all of the cognitive and affective skills mentioned above that can be exploited so i) to understand the underlying cognitive and affective processes that are crucial for successful entrepreneurs, as ii) to develop an automatic and unmanipulated way to recognise a potential successful entrepreneur. In our experiments we will use a combination of dense array electroencephalography (EEG), immersive virtual reality, brain imaging and computational modelling. Only in the last decade the concepts of neuroscience and leadership have been combined and studied together. This is probable due to the fact that in the last decade only, the neuroscientific research has been dramatically increased following the technological advancements so in the hardware development (EEG machines for example became affordable for a typical lab). Noone hasn’t connected all the pieces together towards this direction.
Research questions: The main RQ of the current proposal is if we can predict successful leaders by applying neuroscientific methodology under realistic cases using VR. Our hypothesis states that task-based brain responses can be more indicative of successful leaders compared to resting brain state. Based on this we are going to build a neuroscientifically informed model of assessing leadership skills, going beyond the current state of the art, which is currently based only on behavioral observations.

Research methods: behavioural experiments, EEG, VR

Supervisors:

Dr. Nick E. Barraclough is a Senior Lecturer at the Department of Psychology at the University of York, UK.

Dr. Manousos A. Klados is an Associate Professor at the Psychology Department at CITY College, University of York Europe Campus
**Topic 10: Social interaction and prediction in ASD**

**Context:**
Perception in social contexts is influenced by others, and is shaped by our experiences including various social and cultural contexts. The genetic makeup of an individual also dynamically influences life experiences, and plays a role in social behavior. To gain a better understanding of a polygenic disorder such as Autism Spectrum Disorder (ASD), it will be critical to identify the core strengths and difficulties in social interaction and perception. Successful social interactions rely on the sharing and understanding of a set of common mental states, together with the ability to predict the actions and behaviors of other people. When two individuals interact successfully (dyadic action), it has been proposed that they engage in a collective mode of cognition called the “we-mode” (Gallotti and Frith, 2013). The main idea of the we-mode is that co-agents represent their actions as something they are going to pursue together, as a single unit. Having a different style of cognition alters the engagement in the we-mode, as this has a pervasive influence on the awareness and knowledge of one’s self as well as our perception of others. ASD is considered to impact a person’s ability to engage successfully in social interactions and create shared representations. However, to-date the focus has been mainly on studying the deficits, rather than exploring both the strengths and the actual basis for the social difficulties. In order to develop efficient and targeted interventions, there is a need for improved research that also considers enhanced cognitive abilities in these individuals. This research will directly improve our knowledge of how individuals on the ASD spectrum create relationships with others, which will be critical for their successful treatment. Understanding these processes will require delineating how different brain systems interact to achieve shared action understanding and how these are impacted by ASD.

**Project Aim:**
The central aim of this PhD program will be to characterize and model the deficits, and enhanced abilities, of ASD individuals in social action perception. This will include determining how we evaluate actions at multiple levels of understanding, predict the actions of other individuals and experience actions during dyadic social interactions. This project is an excellent opportunity to gain a deeper understanding of how different styles of cognition impact social interaction and joint action. The project will involve training in a range of techniques psychological and neuroscientific techniques including the use of motion-capture, computer animation, psychophysics, neuropsychological testing and EEG.
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Scope of Research:
This PhD may address the following overarching research questions:

● How cognitive style diversity influences action representations in ASD
● How does ASD impact the ability to predict the intentions of others, and enter the “we-mode”?
● In what ways can ASD enhance the perception of other peoples’ behaviour?
● What is the role of the mirror neuron system in action prediction, shared understanding during dyadic action, and ASD?

Supervisors:

Dr Nick Barraclough is a Senior Lecturer at the Department of Psychology at the University of York, UK.

Dr Maria Tziraki is an Assistant Professor at the Psychology Department at CITY College, University of York Europe Campus.
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**Topic 11: The neuropsychological correlates of mathematical anxiety in adolescents**

**Description:**
Mathematics anxiety, a feeling of worry and tension when carrying out or even just anticipating doing mathematical tasks, is common in high school students. Mathematics anxiety is related to lower mathematical performance (Ashcraft et al., 2007). A possible factor involved in the relationship between mathematics anxiety and mathematical performance is working memory (WM). A classic study showed that adults with high mathematical anxiety (HMA) performed worse on mathematical tasks with high WM load (Ashcraft & Kirk, 2001). A key question is whether dealing with the anxious feelings is just taking up online WM capacity and is thus interfering online with mathematical performance or whether low WM is also a risk factor for developing mathematical anxiety. The proposed project will investigate this question in adolescents, the age group that typically report the highest mathematics anxiety, using behavioural and neurophysiological measures. Recent research has shown that mathematics anxiety influences cortical connectivity profiles during mental calculation tasks, but also during working memory tasks (Klados et al., 2015; Klados et al., 2019), while there are some indications that the nature of the stimuli (numerical/alphabetical) may affect the WM performance of participants with HMA. Changes in cortical networks in anticipation of doing mathematical tasks in adults with HMA (Klados et al., 2017) have also been reported. The proposed project will compare adolescents with HMA to adolescents with low mathematics anxiety (LMA) in three different studies. Study 1 will investigate the influence of mathematical anxiety on WM capacity, and the impact of the nature of the stimuli, by comparing WM performance in four groups: HMA-high WM, HMA-low WM, LMA-high WM, LMA-low WM. All the WM tasks will be performed using both numerical and alphabetical stimuli. Study 2 will manipulate the WM demand during mathematical tasks and study 3 will measure anticipatory responses to expecting to have to carry out mathematical tasks in the aforementioned groups. In all three studies, EEG will be used to investigate differences in Event Related Potentials (ERPs) and functional connectivity between the groups so in scalp as in source level. This project will contribute to a clearer understanding of the role of WM in the relationship between mathematics anxiety and mathematical performance.
Research questions:

1. What role does mathematics anxiety play in the relationship between WM and mathematical performance?

2. Can group differences in ERPs and functional connectivity predict mathematical performance?

3. Is there any difference on the WM performance in respect to the nature of the stimuli?

Research methods: behavioural experiments, EEG studies

Supervisors:

Dr Silke Goebel is a Reader at the Department of Psychology at the University of York, UK.

Dr Manousos A. Klados is an Associate Professor at the Psychology Department at CITY College, University of York Europe Campus
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**Topic 12: Understanding the role of personality in emodiversity and their neuropsychological correlates using EEG**

**Description:**
Emodiversity is explained as the variety and relative abundance of the emotions that humans experience. Emodiversity also appears in the way that brain reacts to emotional stimuli, as the observed increased inter-individual variability in the recorded electrophysiological parameters. Although, there is strong empirical evidence that support the role of personality in emodiversity, in other words how our personality differences are related to our different ways of perceiving emotions, until now their relationship is not well documented. In the light of the above, the main aim of the present study is to shed light on the role of personality in emodiversity, by exploring if there is an influence of personality in the increased variability of the cerebral reactivity to affective stimuli. Experiments will include dense array electroencephalography (EEG) recorded during the passive viewing of pictures with emotional content obtained from the International Affective Picture System (IAPS). Moreover, the NEO-Five-factor-Inventory (NEO-FFI) will be used to measure the participants' personality. Our analysis will be focused so on the ERP characteristics (amplitude and latency), as on functional connectivity networks during emotional processing, where we will measure how much of their observed variance can be explained by the variance of personality as it is recorded by NEO-FFI. Taking into consideration the theoretical resources and the previous research studies that have been conducted, the prospective data will help the deeper understanding of the relation between personality and emotion as well as to define how brain activity associated with specific personality traits and emotional stimuli. It is expected that the findings of the present study will give a small step forward for a better understanding of human emotions, while it will indicate a new methodological framework for the future affective studies. These data can also help us develop more suitable assessments and interventions for both clinical and non-clinical cases in relation to personality, as well as form a better understanding under the scope of emotional complexity and diversity

**Research questions:**
The main aim of the present study is to explore the relation between the observed variance of cerebral reactivity to affective stimuli (as measured by EEG) and the inter-individual variability of personality dimensions. It is hypothesized that emodiversity is positively correlated with personality, by the means that the increased inter-individual personality
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difference will be related with increased variability in the aforementioned electrophysiological parameters.

**Research methods:** EEG study

**Supervisors:**

Prof. Tim Andrews is a Professor and Head of the Department of Psychology at the University of York, UK.

Dr. Manousos A. Klados is an Associate Professor at the Psychology Department at CITY College, University of York Europe Campus
**Topic 13: Executive functions in bilingualism and the role of dopamine activity**

**Aim:**
The so-called bilingual benefit in Executive Functions (EFs) remains a highly debatable phenomenon, in part because many studies lack a sound methodological design or employ insensitive measures. This project aims to establish whether bilinguals’ executive functions are reflected in neurochemically based measures rather than behavioral ones more frequently studied. In particular, we propose to examine activity linked to the striatum (a subcortical brain nucleus) in bilingual and monolingual populations. The striatum is known to play role in rapid language switching (Jean-Sebastien Provost, 2015) and mediates dopamine transmission underlying EFs. Thus, differences in EFs across bilinguals and monolinguals may be linked to dopamine activity. By using brain research methods to understand different populations, this proposal will contribute to the understanding of brain mechanisms underpinning communication and cognition, while revealing characteristics of the great individual and cultural diversity inherent to humans. This contribution therefore nicely aligns with the Research Strategies of York University and of the Psychology Departments of both York University and CITY College.

**Research methods:**
The project may involve training in several neuroscientific methods such as the spontaneous Eye Blink Rates (sEBR) (Colzato, 2016), with the EOG method, eye-tracking, fMRI and computerized cognitive experiments.

**Research questions that could be addressed by this PhD program:**
(a) Are individual differences between monolinguals and bilinguals similar to those between monolinguals?
(b) Why do different tasks and measures yield different results?
(c) Is striatum dopamine influenced by bilingualism and is this reflected in behavior?

**Supervisors:**
*Dr Silvia Gennari* is an Associate Professor at the Department of Psychology at the University of York, UK.
*Dr Aristea Ladas* is an Assistant Professor and Research Associate at the Psychology Department at CITY College, University of York Europe Campus.
Topic 14: Exploring attitudes towards native and non-native accents of spoken Modern Greek

Description:
Subjective attitudes towards regional and social accents have long been known to affect listeners' evaluations of speakers in terms of perceived traits such as competence, honesty, intelligence, and trustworthiness. It is not surprising, then, to find that biases of this sort can lead to prejudice and discrimination that can materially disadvantage speakers of stigmatised varieties, at the same time unfairly advantaging speakers of accents which are more positively evaluated. A substantial amount of research literature has been devoted to positive and negative accent attitudes in the English-speaking world, but thus far only limited attention has been paid to the parallel situation in Greece with respect to accents and dialects of Modern Greek. While for the most part these varieties are indigenous forms of the language which have been spoken in Greece for many centuries, the Greek-speaking community in Greece has in recent generations seen the introduction of accents influenced by the languages of immigrants to the country.

Scope of Research:
The main research question to be addressed by this project is as follows: what is the link between Greek speakers’ attitudes towards contemporary varieties of spoken Modern Greek, and discriminatory behaviour - both positive and negative - towards speakers of the language from within and beyond Greece?

Methodology proposed:
To investigate this question, the proposed PhD project will adopt methodologies used recently to excellent effect for studies of accent attitudes elsewhere in Europe, in particular for the Accent Bias in Britain project (ABB; accentbiasbritain.org), a recent joint venture between Queen Mary University of London and the University of York funded by the UK Economic and Social Research Council. These studies utilise surveys which, on the basis of a set of written labels for varieties of a language, ask respondents to rank the varieties according to their perceived ‘prestige’, ‘correctness’, ‘educatedness’, ‘pleasantness’, ‘attractiveness’, and so on. A second means of investigating participants’ attitudes involves having them listen to recorded accent samples, and to rate the speakers for qualities such as intelligence, competence, honesty, friendliness, humour, and trustworthiness. Other elicitation methods
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include individual/group interviews, researcher-facilitated focus group discussions or a matched guise technique.

**Supervisors:**

*Dr Dominic Watt* is a Senior Lecturer at the Department of Language and Linguistic Science at the University of York, UK.

*Dr Zoi Tatsioka* is an Assistant Professor and Head of English Studies at CITY College, University of York Europe Campus.
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Topic 15: The use of drama techniques via VR in teaching English pronunciation to ELF* learners

Description:
Despite the fact that pronunciation teaching has gained a renewed interest in recent years, studies have shown that English language teachers have reported uncertainty in incorporating this aspect into their classroom (Bai & Yuan, 2019; Gilakjani & Sabouri, 2016; Macdonald, 2002). Especially when it comes to employing drama techniques in pronunciation instruction, a body of research, primarily in ESL contexts, has shown that it can have a beneficial effect on students’ L2 learning of segmental and suprasegmental phenomena (Galante & Thomson, 2017; Korkut & Çelik, 2018). What is more, when VR technology is added, then further considerable gains have been reported (Ratés, Niebuhr & Prieto, 2021). However, considerably limited research has been conducted in EFL settings. The proposed Call for PhD research should investigate the effects of using drama techniques via VR in teaching English pronunciation, in particular specific challenging segmental and/or suprasegmental features, to EFL learners and explore its effectiveness in second/foreign language phonological acquisition.

Scope of Research:
- Is a drama-based EFL approach through VR training more effective in improving students’ oral fluency, comprehensibility, and accentedness compared to a non-drama EFL approach?
- Which drama techniques through VR show greater gains in oral fluency, comprehensibility, and accentedness?
- Which aspects of prosody are more or less affected by a drama-based EFL approach?

Methodology proposed:
- Pre-test recording and post-test recordings of students’ speech
- Control vs. experimental groups
- Actual teaching of English
- PRAAT speech analysis
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Further Reading:


Supervisors:
Dr Sam Hellmuth is a Senior Lecturer at the Department of Language and Linguistic Science at the University of York, UK.
Dr Vicky Papachristou is an Assistant Professor at the English Studies Department at CITY College, University of York Europe Campus.

* These are the two suggestions regarding the interlanguages to be explored: English-Greek and English-Arabic. Any other suggestion for a specific interlanguage is acceptable as well.
Topic 16: Cultural mediation in the refugee context: the case of Northern Greece

Description
As the influx of refugees in Greece grew since the summer of 2015 and the ongoing conflict in Syria—40,559 confirmed asylum applicants in Greece in 2020 according to a recent report by the Hellenic Ministry of Migration and Asylum—and as the need for interpreters, translators and cultural mediators by various NGOs and other organizations became apparent, a growing number of refugees became interested in cultural mediation. It would seem that a by-product of the political instability in countries across the Middle East, the concomitant humanitarian crisis and the unprecedented rise in migrants across Europe is the soaring demand for cultural mediators. Hence, although cultural mediation is a known and acknowledged profession, it has acquired a new dimension in the geo-political context of post-2015 Europe due to the increasing number of refugees and their need to access a variety of services. A question worth pursuing is whether these socio-economic shifts have given rise to the birth of the ‘refugee context’ as a special site of cultural mediation and, by extension, the genesis of a newly codified or semi-codified sub-field of interpreting, translation and cultural mediation with its own norms, stakes and sources of consecration.

Scope of Research
As such, the proposed Call for PhD research concerns research that will attempt to map this new and largely unchartered territory—namely, the emerging field of interpreting, translation and cultural mediation in refugee contexts in post-2015 Europe, by focusing on professional and volunteer interpreters, translators and cultural mediators working with NGOs in Northern Greece who themselves share the status of refugees. More precisely, this project seeks to answer the question: “To what extent have recent socio-economic shifts brought on by the sustained migration flow into Europe redefined the texture of the interpreting, translation and cultural mediation profession through the creation of new contexts, norms, ethics and practices of consecration and through what is seen as the emergence of a new kind of cultural mediator in the field, namely the ‘refugee-cultural mediator’?”

1 See https://bit.ly/3uBkAJC
Methodology Proposed
The project is envisioned as an interdisciplinary one, drawing on the insights of Translation and Interpreting Studies and methodological frameworks developed within the field of Sociology. More specifically, this project can draw on sociological frameworks, such as Latour’s actor-network theory, Bourdieu’s field theory, narrative theory or a combination thereof to map this ‘field of cultural mediation in the refugee-context’ by identifying individual agents that have collaborated with NGOs, such as Solidarity Now, Terre des Hommes, etc., in their field operations in Northern Greece and who have offered their interpreting and translating services in these types of settings in a both formal and informal capacity and by delineating their social/narrative positions therein to see how refugee-cultural mediators’ positions and dispositions shape the field.

Further Reading
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Supervisors

Dr Ahmed F Khaleel is an Associate Lecturer in Arabic, at the Department of Language and Linguistic Science at the University of York, UK.

Dr Kalliopi Pasmatzi is an Assistant Professor and Research Director of the English Studies Department at CITY College, University of York Europe Campus.