Post Title: PhD Studentship in Multi-Sensor Image Fusion for Scene Analysis
Location: Dublin City University (DCU)
Anticipated Start Date: September 2022
Closing Date: 20 May 2022
Apply: https://forms.gle/7J3CR6ESxMR1itog9

Project

Efficient exploitation and recycling of the multi-sensor optical imagery leads to complete elimination or substantial reduction of the need for manual interventions during mapping and monitoring campaigns. The central aim of this PhD project is to develop and validate state-of-the-art statistical and machine learning techniques for synergistic use of multi-sensor data for the purpose of comprehensive object-aware scene analysis which includes both semantic interpretation and high-fidelity position estimation (geolocalization) of objects. This will be achieved by relying on data such as street level imagery, airborne/satellite optical imagery, laser scans and 3d point clouds obtained via Light Detection and Ranging (LiDAR) systems, as well as data originating from GIS static maps. The project will be supervised by Prof. V. Krylov in Dublin City University as part of the ADAPT research centre.

The candidate

You are a motivated and enthusiastic person with a primary degree (e.g. Master's degree) in computer science, statistics, machine learning, electrical engineering or related fields, with a strong interest in developing and implementing/prototyping machine learning and statistical techniques. Some prior experience with computer vision and/or image processing will be particularly relevant for this position. You are curious, have strong analytical thinking skills, and you communicate clearly in written and verbal settings.

As an ADAPT funded PhD researcher you will have access to a network of 85 global experts and over 250 staff as well as a wide multi-disciplinary ecosystem across 8 leading Irish universities. We can influence and inform your work, share our networks and collaborate with you to increase your impact, and accelerate your career opportunities. Specifically, we offer:

1. Opportunity to build your profile at international conferences and global events.
2. A solid career pathway through formalised training & development, expert one-on-one supervision and exposure to top specialists.
3. A Fully funded, 4 year PhD postgraduate studentship which includes a stipend of (€18,500 per annum - non taxed), along with equipment, annual travel funding
4. Funding for annual student fees

Application Process

Each application should only consist of
1. Detailed curriculum vitae;
2. An example of technical report writing e.g. publication, or final year project report, or MSc dissertation;
3. Transcripts of degrees;
4. The name and email contacts of two academic referees;
5. A cover letter (max 500 words) motivating their application for the proposed topic.

Diversity

ADAPT is committed to achieving better diversity and gender representation at all levels of the organisation, across leadership, academic, operations, research staff and studentship levels. ADAPT is committed to the continued development of employment policies, procedures and practices that promote gender equality. On that basis we encourage and welcome talented people from all backgrounds to join ADAPT.

About the ADAPT Centre

ADAPT is the world-leading SFI research centre for AI Driven Digital Content Technology hosted by Trinity College Dublin. ADAPT's partner institutions include Dublin City University, University College Dublin, Technological University Dublin, Maynooth University, Munster Technological University, Athlone Institute of Technology, and the National University of Ireland Galway. ADAPT's research vision is to pioneer new forms of proactive, scalable, and integrated AI-driven Digital Content Technology that empower individuals and society to engage in digital experiences with control, inclusion, and accountability with the long term goal of a balanced digital society by 2030. ADAPT is pioneering new Human Centric AI techniques and technologies including personalisation, natural language processing, data analytics, intelligent machine translation human-computer interaction, as well as setting the standards for data governance, privacy and ethics for digital content.

Our Research Vision

Governments and civil society are starting to recognise the need for urgent and concerted action to address the societal impact of the accelerating pace of digital content technologies and the AI techniques that underpin them. ADAPT provides an ambitious, ground-breaking, integrated research programme that assembles three interlocking Strands that together are capable of addressing this challenge. Each of these complementary and reinforcing research Strands takes one of the different perspectives on the provision of personalised, immersive, multimodal digital engagement, i.e. the individual's experience and control of the engagement, the algorithms underlying digital content processing, and the balanced governance by enterprise and societal stakeholders.

Digitally Enhanced Engagement Strand

From the individual perspective, research within this Strand will deliver proactive agency techniques that sense, understand and proactively serve the needs of individual users to deliver relevant, contextualised and immersive multimodal experiences which also offer them meaningful control over the machine agency delivering those experiences.

Digital Content Transformation Strand

From the algorithmic perspective, new machine learning techniques will both enable more users to engage meaningfully with the increasing volumes of content globally in a more measurably effective manner, while ensuring the widest linguistic and cultural inclusion. It will enhance effective, robust integrated machine learning algorithms needed to provide multimodal content experiences with new levels of accuracy, multilingualism and explainability.

Transparent Digital Governance Strand

From the enterprise and societal perspective, new structured knowledge frameworks and associated practices for AI data governance will be required to balance the needs and values of individuals, organisations and society when it comes to rich digital experiences. This requires the advancement of research in the areas of data ethics, data quality, data protection, data value, data integration, and multi-stakeholder governance models.