

Hamidreza RABIEI DASTJERDI

Technology Centre: Center for Applied Data Analytics (CeADAR), University College Dublin (UCD)

Academic Mentor: Dr Gavin McArdle

Commercial Partner: Future Analytics Consulting

Commercial Mentor: Prof. William Hynes

Dr Hamidreza Rabiei Dastjerdi completed his PhD in Spatial Planning and Urban Development at the University of Politecnico di Milano, an MSc in Remote Sensing and Geographic Information Systems at Tarbiat Modares University and a B.Eng. in Mining Engineering (Exploration) at Yazd University in Iran.

Center for Applied Data Analytics (CeADAR)

Dr Gavin McArdle

Dr McArdle is an Assistant Professor in the UCD School of Computer Science and a collaborator with CeADAR. He is an expert in urban dynamics and collecting, analysing and visualising spatial data. His research is interdisciplinary and uses computing to solve problems in the geographic and spatial context. Gavin is the director of the MSc Computer Science (Conversion) Programme at UCD. This programme provides graduates from other disciplines with a firm understanding of computer science. His research has received several grants from National and European Funding agencies which support collaboration with researchers in academia and industry.

Prof. William Hynes

Professor Hynes is a leading expert and provides advice to public and private sector clients in strategic spatial planning, demography, retail, housing and economic analysis and forecasting, health planning, and infrastructure planning (roads, rail, services, etc.), and is currently providing social and socioeconomic expertise across a range of economic development and regeneration projects. He is a chartered surveyor, chartered planner and urban economist and founded Future Analytics Consulting in 2010. He is the managing director of FAC and manages a team of 24 people at the company. He is also an Adjunct Professor at University College Cork. Until 2008 William was an academic in School of Geography, Planning and Environmental Policy at UCD where he supervised PhD researchers and over 60 MSc students.

CeADAR is the National Centre for Applied Data Analytics and Machine Intelligence. CeADAR is a market-focused technology centre that drives the accelerated development and deployment of data analytics and machine intelligence technology innovation. The Centre's work focuses on developing tools, techniques and technologies that enable more people, organisations and industries to use analytics and machine intelligence for better decision making and competitive advantage. CeADAR is the bridge between the worlds of applied research in data analytics and machine intelligence and their commercial application.

Future Analytics Consulting (FAC)

FAC is an innovative, multidisciplinary SME that specialises in the areas of strategic spatial planning, economic analysis and data analytics and evidence-based research and development. FAC's research expertise extends to urban resilience, including risk assessment, critical infrastructure and large-scale urban built infrastructure protection. FAC also specialise in economic and socio-economic analysis and benefit from the collective academic and commercial experience of senior personnel. The company has established a strong profile in applied research projects, particularly those with an underlying evidence-base.

Hamidreza's project

“Evidence-Based Decision Support for Real-Estate Investment”

Global real-estate transactions will surpass \$1 trillion by 2020. This is up from €700 billion in 2015[1]. This represents many transactions by investors and individuals. Many investors and consumers hope the value of the asset will appreciate. Location is a key determinant of where to purchase or invest. The rate of appreciation will vary from location to location due to factors such as socioeconomic drivers, cost of living, future development plans, demographics, etc. The data are inherently spatial as they describe the processes, function and form of a location.

Currently there is a gap in the provision of data and models to help investors understand the market and dynamics of the purchase area. This impacts investors' ability to make informed and evidence-based decisions to maximise potential returns. Making decisions regarding the purchase of real estate is a complex task which requires multicriteria analysis. There are competing factors which influence the decision of individuals and corporations about where and when to purchase a property.

Although there is now big spatial data available, there is currently a gap in how best to transform this data into information for decision making. Solving this gap requires the development of a new analytical framework which considers relevant data, methodologies, spatial and socioeconomic dimensions, spatial analysis tools, urban indexes, data analysis and visualisation to transform raw big data into useful information in the real-estate domain.

The framework, developed in this fellowship, considers the behaviour and motivations of decision makers. The new analytical framework will be demonstrated through the development of an analytical dashboard for individuals and enterprises. A case study of Dublin in Ireland which is currently experiencing a shortage of both private and commercial property will be used. The dashboard will enable a comparison of locations at a microscale based on current data and future predictions.
