



Hossam ZAWBAA

Technology Centre: Centre for Applied Data Analytics (CeADAR)
Academic Mentor: Dr Wael Rashwan
Company Partner: Huawei Research Center, Ireland.
Company Mentor: Dr Haytham Assem

Dr Hossam Zawbaa is an Assistant Professor at the Faculty of Computers and Artificial Intelligence, Beni-Suef University, Egypt. He received his BSc in 2008 and MSc degree in 2012, both from the Faculty of Computers and Artificial Intelligence, Cairo University, Egypt. He received his PhD in 2018 from the Faculty of Mathematics and Computer Science, Babes-Bolyai University, Romania. Interestingly in 2020, Dr Hossam has rated as one of the top 2% scientists worldwide by Stanford in AI. Also, Dr Hossam has awarded the State Encouragement Award for the year 2020 in the field of Engineering Sciences from the Academy of Scientific Research and Technology, Egypt. He has authored/co-authored over **65** publications in peer-reviewed reputed journals and international conference proceedings. As per Google Scholar, Dr Hossam has more than **2570** citations, **29** h-index, and **45** i10-index.

Dr Wael Rashwan

Dr Rashwan is a lecturer in Data Analytics at TU Dublin, a collaborator in CeADAR for the last two years, and a member of the Applied Intelligence Research Centre. He is also leading the healthcare analytics track at 3S Group at TU Dublin College of Business. He has significant experience in managing collaborative data analytics research projects with the industry. He has delivered multiple projects in CeADAR and the Irish Department for Health and Innovation Partnerships programme. He has also managed several demonstrator projects in CeADAR with numerous industry partners. He led two CeADAR demonstrators and a couple of innovation vouchers in data analytics. Dr Rashwan is continuing to collaborate with CeADAR-phase two in a PI capacity.

Dr Haytham Assem

Dr Haytham Assem is the AI Chief Scientist in Huawei. Before this, Dr Haytham was a Chief Scientist and Technical Manager in IBM Dublin, Ireland and had several years of industrial experience with the first two years in Mentor Graphics and the latter years in IBM. He was leading the Cognitive Computing Group (CCG) in Dublin. Dr Haytham Assem has several papers published in top tier conferences. He has more than 35 patents filed with IBM in Smart Cities and Artificial Intelligence; three patents are awarded as top-10 IBM patent awards. In 2015, he was named as the youngest Master Inventor in IBM history. In 2018, Dr Haytham had been called by Forbes as one of the top 30 under 30 in Europe in the technology sector and named by Forbes Middle East later in the year as one of the most 30 influential in the Middle East in the science sector.

Centre for Applied Data Analytics (CeADAR)

CeADAR is the National Centre for Applied Artificial 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 to make 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.

Huawei Research Center, Ireland

Huawei announced in 2019 a €70 million investment in Irish research and development over the next three years to support its growing business in Ireland. The company has said the R&D would focus on video, Cloud computing, artificial intelligence, and site-reliability engineering. The work will be supported by over 100 researchers, experts and engineers Huawei employs across its R&D offices in Cork, Athlone, and Dublin. The company's Dublin R&D office is part of Huawei's European Research Institute and forms part of Huawei's research ecosystem.

Hossam's Project

" Few-shot Learning for Natural Language Understanding (FSL-NLU) "

Few-shots learning is a fast-growing field of Machine Learning that reduces the amount of labelled data required for training a supervised classifier. Few-shots learning applied in various applications with a large amount of unlabelled data. However, obtaining labels for the unlabelled data is difficult, expensive or time-consuming. Few-shots learning holds the promise to solve some of the current challenges in AI. It tries to reduce the amount of labelled data required for classification tasks, reducing the time, effort and cost involved. This approach's objective is that the learning algorithm can obtain higher accuracy with fewer labelled samples if it is enabled to choose the data from which it learns—this project focus on building an Active Learning framework for cross-lingual natural language inference.

Huawei Ireland Research Centre focuses on research and developing AI algorithms for solving complex research challenges leveraging the recent advancements in AI. For this aim, Huawei provides access to large real-datasets collected from Huawei and data processing infrastructure as needed. This project is aligned with the AIOps team mission to drive Huawei's Intelligent Cloud Operations and management system. It has a high potential to integrate the developed Few-shots Learning framework for cross-lingual natural language inference with other technologies expected to result in a more decisive impactful outcome.

This project is directly aligned with the Enterprise Ireland funded Technology Centre for Applied Data Analytics (CeADAR), aiming to drive the accelerated development, deployment, and adoption of big data and Machine Learning technologies for its member companies. This project will strengthen the state-of-the-art in active Machine Learning for cross-lingual natural language inference and deliver a prototype to allow new datasets to be tapped easily to guarantee a higher impact beyond the Cloud operations domain. Undertaking the work in collaboration with CeADAR will provide the project with access to Machine Learning experts and a comprehensive knowledge base.

Moreover, this project will significantly impact shaping my career as an independent researcher and supporting my aspiration to work in research in an industry environment that focuses on solving real-world problems using real-world data. The project will entail a comprehensive training and robust career development plan that help sharpen my skills in the Machine Learning field and getting the opportunity to work with big data sets provided by Huawei.

The project contributors, CeADAR, Huawei, TU Dublin, and mentors, are committed to this research project. They will bring together their support, resources, knowledge, and environment necessary to accomplish this project.