

## Knowledge Transfer Partnerships

### Developing Advanced Sentiment Analysis Techniques



**Company name:** RepKnight  
**Location:** Belfast  
**Project length:** 18 Months  
**University School:** School of Computing & Mathematics  
**Academic Team:** Professor Maurice Mulvenna and Dr Yaxim Bi



#### The Company

RepKnight, based in Belfast and London, provides a highly-secure software solution that captures, analyses and reports on data from the widest range of open source digital, social media and dark web sources. Capable of harvesting a million messages every minute with near-instant analysis, or of finding a single crucial piece of digital data, RepKnight's award-winning solution has been specifically engineered to enable businesses to surface crucial information for quick and accurate decision-making. For more information visit [www.repknights.com](http://www.repknights.com)

#### The Challenge

RepKnight's sentiment analysis engine is a key tool used by clients. As many of these clients operate in the security sector, it is paramount that sentiment is analysed and categorised accurately. RepKnight's customers use this information to help them make crucial decisions regarding public safety and well-being.

The overall purpose of the KTP was to develop an algorithm for sentiment analysis that offered compelling and actionable insights into online behaviour. The end objective was to increase competitiveness and growth for the company.

#### The KTP

During the KTP the Associate designed and developed a sophisticated sentiment analysis tool that includes additional features to the existing algorithm. The new features enable clients to further investigate any offending message and to draw further conclusions, such as inferring networks between messages, and understanding how and why the mood of messages or subjects has occurred.

The Associate has actively participated in engagement with key customers and industry sectors which has resulted in winning significant new business for the company. The Associate also developed lexicons in Polish, Portuguese, Malaysian and Arabic to allow RepKnight to accommodate potential clients from new geographic locations that had not previously been explored.

## Company benefits

The KTP has:

- introduced a new management culture to ensure that the company's future technology innovations are accurately aligned to new market opportunities.
- provided RepKnight with significant software capabilities beyond what was originally expected. In particular, the integration of non-English lexicons will attract a range of new international clients.
- improved competitiveness and productivity
- secured new clients from government and security sectors in international markets.

*"Our involvement with KTP exceeded our expectations. It enabled us to continue to compete at the top level and increase the view of our solution worldwide."*

**Seamus Clarke**  
CTO, RepKnight

## University benefits

The KTP has made a significant impact to the development of academic research staff. In particular, it has provided useful real-world data sets for testing and validating sentiment algorithms. This data has been used by University research groups working in social media analytics and data mining. Staff are now able to more confidently predict which state-of-the-art computer science approaches will yield useful results to companies wishing to undertake sentiment analysis in broad domains in security, bullying detection, and brand and event analysis.

The project has also opened up other avenues of research support including opportunities for Horizon 2020 funding from the European Commission. The University has also won funding for a new PhD student to work with the company on a bursary under the Co-operative Awards in Science and Technology (CAST) scheme.

*"The KTP programme continues to provide Ulster University with an established, tried and tested framework that facilitates engagement with local companies and gives our high calibre graduates an accelerated career route."*

**Professor Maurice Mulvenna**  
School of Computing & Mathematics



## How to apply for a KTP

### Contacts

Check the feasibility of your idea with your University Programme Manager.

Ulster University Programme Manager  
Ms Amanda Fullerton  
E: [a.fullerton@ulster.ac.uk](mailto:a.fullerton@ulster.ac.uk)

Or you can call Ulster University  
on **028 7167 5236** or go  
to [www.ulster.ac.uk/ktp](http://www.ulster.ac.uk/ktp)



Or with an Invest Northern Ireland executive.

Contact the Invest NI Programme  
Manager Karen Hastings  
E: [karen.hastings@investni.com](mailto:karen.hastings@investni.com)

Or you can call Invest NI  
on **0800 181 4422** or go  
to [www.investni.com/contactus](http://www.investni.com/contactus)