Artificial Intelligence Points the Way to a Bright Future

Our two themes for this issue are strongly linked: Artificial Intelligence (AI) and Education. As Andrew Coote and Owen Hawkins explain in their articles, AI is set to be crucial in extracting information from the vast amounts of data which we are now collecting. The term GeoAI is gaining traction because location can play an invaluable part in successful AI. Almost every article in this issue of GW mentions AI. So, as the articles on education explain, AI is becoming an essential component of courses, requiring new ways of looking at the curriculum.

Readers may be confused by the terminology around AI which includes Machine Learning and Deep Learning. One way of understanding this is to visualise them as concentric circles with AI the largest, then machine learning, which blossomed later, and finally deep learning which is driving today's AI explosion, fitting inside both. This is explained by Michael Copeland in his blog (https://bit.ly/2aoQwlx). He notes that AI is human intelligence exhibited by machines whilst Machine Learning is an approach to achieve AI. Machine Learning at its most basic is the practice of using algorithms to parse data, learn from it, and then make a determination or prediction about something in the world. A machine is "trained" using large amounts of data and algorithms that give it the ability to learn how to perform the task. Deep Learning is a technique for implementing Machine Learning - picking images of cats out of YouTube videos was one of the first breakthrough demonstrations of deep learning.

The article by Isabel Sargent and her colleagues at Ordnance Survey demonstrates that developing and implementing AI is complex and time-consuming, but the rewards can be considerable. This is further demonstrated in the November issue of the ISPRS Journal of Photogrammetry and Remote Sensing which was devoted to Deep Learning for Remote Sensing Data and includes articles on classification, registration and object detection.

We report on several important developments in education. UCL is one of the foremost centres for geomatics education in the UK and Jonathan Iliffe's thoughtful article on how their courses have been restructured, demonstrates the many factors which need to be considered in attracting students and ensuring they can enter the profession as well-prepared individuals. We note that the new course at UCL will be called Geospatial Sciences, and along with The Geospatial Commission, we wonder if this term will replace geomatics in time.

We also report on developments in apprenticeships and on Ruth Adam's appointment as manager of the Survey School. We note the enthusiasm at companies like the Severn Partnership for apprenticeships and hear from Wim van Wegen at GIM International who hopes that by introducing school children to geomatics, it may become cool and enthuse more young people to join us.

New Year is traditionally the time for looking forward and making predictions. As we write, Gatwick Airport is closed due to malicious drone activity; we can safely predict, as noted in the report on the UAV exhibition, that UAVs will become more ubiquitous, although their use may be more regulated and limited. In the UK, transport will continue to be in the headlines and we can expect continued work for the geospatial community in construction, and this may be fuelled by initiatives from the Geospatial Commission. AI will continue to play a role in autonomous vehicles, smart cities and image analytics. The reports on INTERGEO, Digital Construction Week and the World Geospatial Information Congress reported on by James Kavanagh indicate vibrant activity in the construction and international spheres. Brexit, and the chaos in government, may slow down strong development but the continued success of GeoBusiness, INTERGEO and other developments, suggests the future will be bright.

We wish our readers a successful year in 2019 and invite your stories of successful collection and application of geospatial data.

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https://www.gim-international.com/content/article/artificial-intelligence-points-the-way-to-a-bright-future