PhD Opportunity: EPRSC – Industrial Cooperative Awards in Science & Technology (ICASE)

AREA: Statistical Machine Learning with Applications in Industrial Processes

Project Summary:
This studentship offers a unique opportunity for a student to work on developing novel statistical machine learning methods for analysing large-scale data with applications in engineering. Recent innovations in machine learning has been largely driven by the emergence of Big Data that are correlated, high-dimensional, dynamic and often not in the Euclidean space. The PhD project is aimed at developing novel statistical machine learning methodology and algorithms to address the modelling challenges that arise. Examples of the PhD project include: High-dimensional statistical models for structured data analysis; Computational methods for analysing large dimensional large sample size data; Dynamic multivariate data analysis in high-dimensional spaces; or Statistical analysis of non-Euclidean data. The post holder will have the freedom to explore one or more examples.

This project is motivated by the need for building predictive models to understand steel manufacturing processes. An integrated component of this project is to refine the developed machine learning models to further accommodate the nature of manufacture and varying levels of uncertainty associated with data collection process. It is envisioned that these models will be able to tune and identify parameters affecting the production with a view to on-line autonomous application and should be transferable to other products in engineering.

The student will be mainly based in the department of statistics at Warwick, one of the largest statistics departments in the world with a thriving PhD program and a long-established reputation for research activity of the highest quality. S/He will spend at least 3 months at Tata Steel to collaborate with the scientists there. The student will undertake the extensive training opportunities provided by Warwick Statistics department and will be able to interact with Big Data users at Tata Steel.

The candidate would be expected to have at least a 2:1 degree in Statistics, Mathematics, Engineering or a related subject with a strong quantitative component. The studentship is funded by EPSRC and Tata Steel to cover the 4 year value of stipend, fees and incidental costs for home students. EU students may be eligible for a fees-only award (no maintenance grant). The studentship should start in October 2017 or as soon as possible thereafter before October 2018. More information about PhD study at Warwick can be found at http://www2.warwick.ac.uk/fac/sci/statistics/postgrad/research/.

Enquires about the studentship should be directed to

Academic Supervisor:
• Professor Chenlei Leng, Department of Statistics, University of Warwick, Coventry, CV4 7AL. Tel: +44 (0)2476 150779. Email: C.Leng@warwick.ac.uk, URL: www.warwick.ac.uk/chenleileng

Industrial Supervisor:
• Fiona Robinson, Cogent Power Ltd., Orb Electrical Steels, PO Box 30, Stephenson Street, Newport, NP19 0RB. Tel: +44 (0)1633 294505. Email: Fiona.cj.robinson@tatasteel.com
• Steve Thornton, Tata Steel Research & Development, University of Warwick Science Park, Sir William Lyons Road, Coventry, CV4 7EZ. Email: steve.thornton@tatasteel.com