

Bournemouth University and Degussa AG funded PhD Studentship

Computational Intelligence Research Group (CIRG)

***School of Design, Engineering and Computing,
Bournemouth University, United Kingdom***

Applications are invited for a 3 year PhD research studentship to work on a project entitled "**Self-adapting and Monitoring Soft Sensors for Process Industry**" which is jointly funded by Bournemouth University and Degussa AG, a multinational specialty chemistry company with over 45000 employees worldwide and turn-over of € 11.2 billion in 2004.

To meet the demand of today's operational excellence required in the process industry digital storage and processing of data obtained from the running processes has almost completely made its way into base level control equipment and distributed control systems of today's industrial production plants. However, the ease of capturing and storing the data has not been matched with the development of suitable intelligent data processing techniques and much of the high level interpretation of the state of the system is still carried out by experienced, skilled human operators. Industrial environments require **highly flexible predictive models**. Process regimes shift due to aging, fouling, blocking or wear out phenomena. Raw materials may unexpectedly change in quality or composition. Pieces of equipment are exchanged or modified as consequence of maintenance or process optimisation measures. While the currently existing modelling approaches are often very powerful, they are **simply not adaptive to potentially changing environments** which can very quickly lead to a significant **decrease in predictive performance** and the need for adjustment or, even worse, **complete redesign of the models**.

This project will be an application driven investigation of the possible exploitation of various **computational intelligence** and **nature-inspired techniques** for development of **self-aware, -monitoring, -validating and -adapting soft sensors** for process industry based on a more general **class of locally adaptable and highly flexible predictive models** required in industrial environments.

The student will be joining a Computational Intelligence Research Group and will be primarily based in the School of Design, Engineering & Computing in Bournemouth but will also have an opportunity to frequently visit and work for up to 2 months in each year of the project duration at the Degussa Labs in Germany.

The studentship carries a basic remuneration of £12500 pa tax-free (with possible increments for suitable candidates) and payment of tuition fees at home/EU rate. The successful applicant will normally need to be an EU citizen though a limited number of studentships is available for outstanding non-EU candidates.

Applicants should have a strong mathematical background and hold a first or upper second class honours degree or equivalent in computer science, mathematics, physics, engineering, statistics or a similar discipline. Additionally the candidate should have strong programming experience using any or combination of C++, Matlab or Java.

For further details please contact Prof Bogdan Gabrys, e-mail: bgabrys@bournemouth.ac.uk or visit the following www pages: http://dec.bournemouth.ac.uk/staff/bgabrys/PhD_Studentships_2006.html.

Interested candidates should follow the application procedure listed on the University of Bournemouth web pages: http://www.bournemouth.ac.uk/thegraduateschool/phd_studentships/how_to_apply.html.

Further details concerning the studentship and application procedure can be also obtained from the School of DEC Research Administrator - Ms Jo Sawyer, Email: jsawyer@bournemouth.ac.uk. Tel: +44 (0)1202 965985