

# Bournemouth University and Lufthansa Systems Berlin (LSB) 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 "**Data Mining and Multi Level Combination for Cancellation Forecasting**" which is jointly funded by Bournemouth University and Lufthansa Systems Berlin GmbH, the world leading IT service provider for the airline and aviation industry.

Accurate forecast of the demand for airline tickets for many classes from the low yield economy customers to the premium paying first class and business customers is critical within revenue management applications commonly used by large airlines like Lufthansa for maximizing the revenues.

The main two components which decide about the quality of the final forecast are the accurate predictions of the demand based on the **current and historical booking** information combined with accurate **predictions of cancellation** rates. The main focus of the current forecasting systems and our successful current project with Lufthansa Systems Berlin (LSB), upon which this proposal builds, has been on the booking based forecasting and use of **novel adaptable multilevel forecast combination** techniques for improving of the forecast quality.

In this project substantial level of information stored in the airline Passenger Name Records (PNRs) will be exploited through the use of **data mining** approaches and **new adaptable classification methods** for modelling and understanding of various groups of customer behaviours and improvement of the cancellation forecasts. One of the main aims and challenges of the proposed research is a development of an adaptable framework within which the booking based forecasts of the demand will be combined with cancellation forecasts and assessment of the risks based on the modelling of customer behaviour.

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 Lufthansa Systems Berlin Labs in Berlin, 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](mailto:bgabrys@bournemouth.ac.uk) or visit the following www pages: [http://dec.bournemouth.ac.uk/staff/bgabrys/PhD\\_Studentships\\_2006.html](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](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](mailto:jsawyer@bournemouth.ac.uk). Tel: +44 (0)1202 965985