Boris Mirkin

Current research interests

Mathematical models, computational algorithms and programs for visualization and clustering of data in molecular biology, genomics, sociology, ecology, and other applications.

Education

1990 D.Sc. (Statistics and Systems Engineering).
Institute for Research in Systems Analysis of the USSR Academy of the Sciences, Moscow, Russia.
Thesis: ``Matrix Approximation Approach to Clustering Problems for Multivariate Mixed Scale Data: Theory, Algorithms and Applications".

Professional experience

2000-- Professor. School of Computer Science and Information Systems, Birkbeck College, London University. London, UK.
Teaching courses "Computational Intelligence and Visualization" (Ms Programme), and "Computer Systems" (2001-2003) and "Software and Programming" (Bs Programme).
Research in clustering and bioinformatics.

1996--1999 Visiting Research Professor. Divisions of Bioinformatics and Molecular Biophysics, German National Center of Cancer Research (DKFZ). Heidelberg, Germany.
Research in analysis of bioevolution and in clustering and mining in genomic data bases.

1993--1998 Research Associate. DIMACS (Center for Discrete Mathematics & Theoretical Computer Science, a NSF Science and Technology Center), Rutgers University. Piscataway, NJ, USA.
Research in mathematical models and algorithms for cluster analysis with a wide range of applications (supported by ONR grants).

1995--1996 Consultant. Moscowitz Jacobs Inc. White Plains, NY, USA.
Consultancy and research in data analysis for marketing research.

1992--1993 Consultant. International Energy Agency (IEA), Organisation for Economic Cooperation and Development (OECD). Paris, France.
Research and consultancy in energy statistics.

1991--1992 Visiting Professor. Department of Informatics and Statistics. Ecole Nationale Superieure des Telecommunications. Paris, France.
Research in clustering with contingency data.

1982--1991 Senior Research Scientist and Full Professor. Department of Applied Statistics. Central Economics and Mathematics Institute (CEMI) of the Russian National Academy of Sciences. Moscow, Russia.
Research topics: methods for clustering with mixed data; algorithms and computations for identifying social preferences; socio-economic equilibrium

models.
Director of a PC software project for classification and cluster analyses of multivariate mixed scale data.

1975--1982 Head of Division of Data Analysis. Institute of Economics of the Siberian Branch of the USSR Academy of the Sciences. Novosibirsk, Russia.
Research topics: discrete data structures; biomathematics; mathematical economics and sociology; methods for multivariate data analysis and clustering.
Technical leader in a number of large-scale application projects such as ``Analysis and Improvement of Organizational Structures in Large Industrial Enterprises", ``Handling, Processing and Analyzing Data from Large-Scale Surveys", ``Prediction of Industrial Indexes", ``Classification and Risk Factors of Respiratory Diseases", ``Revealing Biomolecular Structures in Genetic Data".

Part-time teaching

1984-1991 Associate Professor, Full Professor. Department of Mathematics and Statistics, Academy of Labour and Social Relations. Moscow, Russia.
Supervised 4 Ph.D. theses. Taught courses in discrete mathematics, calculus, linear algebra, probability and statistics, and a computer-oriented course in applied multivariate statistics and data analysis for PhD students.

1973-1982 Associate Professor. Department of Mathematical Methods in Economics, Novosibirsk State University, Russia.
Supervised 8 Ph.D. dissertations and 37 M.S. theses. Taught courses in mathematics for economics, management and control systems, mathematics and computers in sociology, multidimensional data analysis, and methods for combinatorial analysis of genomic data.

Selected organising activities

2005 United Kingdom Workshop on Computational Intelligence, Birkbeck College, London.
Chair of the Organising Committee.

1996 Workshop on Mathematical Hierarchies and Biology, DIMACS, Piscataway NJ.
Chairman of the Organizing Committee.

1990, 1986 National Conference on Theory and Practice of Classification, Pushchino-na-Oke, USSR.
Chairman of the Program Committee.

Selected grants

2004-2006 Analysis of Gains and Losses of Gene Function in Herpesvirus Genome. Grant from the Wellcome Trust to Birkbeck College.

1996-1998 A Linear Theory for Discrete Binary Hierarchy and Its Applications (Clustering, Ordering, Search, and Image Processing).

Grant from the Office of Naval Research to Rutgers University.

1993- Approximation of Data by Discrete Structures for Classification Purposes.
1995 Grant from the Office of Naval Research to Rutgers University.