Biomedical applications of machine learning

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resumen:

As the technology for gathering data becomes ever more powerful, the tools for analyzing the increasing volumes of information need to become more 'intelligent'. This data boom (particularly driven by the mapping of genomes) has led to the rapid development of machine learning algorithms.

Bioinformatics is an active research area in the Department of Computer Science, Royal Holloway, University of London (RHUL). This activity aims to apply machine learning techniques such as Confidence Machines (CM) and Support Vector Machines (SVM) for the development of a number of practically applicable algorithms (in partnership with both industrial and civil organisations) for a wide variety of problems.

A few examples of the application of CLRC algorithms will be presented, such as:

- Discovery of novel cancer serum biomarkers based on aberrant post-translational modifications of O-glycoproteins, O-PTM-Biomarkers, and their application to early detection of cancer
- Proteomic Analysis of the Human Serum Proteome for Population Screening, Diagnosis and Biomarker Discovery
- Comparisons of Plasma Protocols
- Ovarian Cancer - Adnexal mass categorizing
- Abdominal pain diagnostic tool
- Veterinary Laboratories Agency project
- Improving Plant genes/promoters prediction
- Plant genomes annotation

sobre Alexander Gammerman:

Professor Gammerman studied in Leningrad (now St Petersburg), was awarded his PhD in 1974, and then worked in several Research Institutes of the Academy of Science of the USSR. In 1983 he moved to Great Britain and worked first at Heriot-Watt University, Edinburgh, and since 1993 he is Professor of Computer Science at University of London (Royal Holloway and Bedford New College). He served as Head of the Computer Science Department from 1995 to 2005 and currently is the Director of the Computer Learning Research Centre at Royal Holloway, University of London.

Professor Gammerman is a Fellow of the Royal Statistical Society and has been serving on the editorial boards of several computer/statistical journals.

Professor Gammerman's current research interest lies in field of Algorithmic Randomness Theory and its applications to machine learning. Areas in which these techniques have been applied include medical diagnosis, forensic science, genomics, finance and others.

Professor Gammerman has published over a hundred research papers and several books on computational learning and probabilistic reasoning.