Laboratory Automation and Information Management Paradigms for Functional Genomics and Proteomics Applications

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The power of the 'Systems' paradigm in life science research is based in large part on the development of very large functional genomics datasets that have recently arisen in various biological systems. The development of these datasets has, in turn, been strongly based on the application of sample handling systems coupled to automated information acquisition and data analysis afforded by a combination of laboratory automation and bioinformatics technologies. The discussion will present a well-established integrated automation paradigm implemented by us in 2000 - the 'ELVIS' system, and discuss the co-development of an automated information handling system designed to span 'upstream' sample tracking and management tasks, as well as 'downstream' functional genomics data analysis. Recent automation/information management paradigms represented by state-of-the-art 2-dimensional 'neighborhood' device management and control concepts will also be presented.

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FINAL EDUCATION (Ph. D.)

1978	Biochemistry, Heriot-Watt University, Edinburgh, Scotland

EMPLOYMENT

1/1985	appointed Adjunct Professor of Biology, University of Saskatchewan.
4 - 9/1993	attended 9-month research sabbatical to Laboratory of Molecular Biology and Centre for Protein Engineering, MRC Cambridge
9/1994	Adjunct Professor, Department of Biochemistry, University of Saskatchewan
2/1998	Steering Committee (Scientific Board) for the NRC Genomics Strategic Initiative
2/1999	appointed Program Leader, PBI Genome Sciences program
11/2002	Full Professor (Term) and Director of Bioinformatics, University of Saskatchewan

RESEARCH PUBLICATIONS

Liu F.Q, Xu L.H, Genschick P, Crosby W.L, Ma H and Xie D.X. (2002). The SCFCOI1 ubiquitin-ligase complexes are required for jasmonate response in Arabidopsis. *Plant Cell* 14, 1919-1935

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