

David S. Brée

Curriculum Vitae as of 16 December 2010

Date of Birth: 2 December 1939
Nationality: British
Marital status: Married
Children: One

Address from 1 July 2010: Eerste Weteringdwars straat 32,
1017 TN, Amsterdam, The Netherlands

Present position

2006 Emeritus Professor of Artificial Intelligence

School of Computer Science

University of Manchester

Manchester, M13 9PL, United Kingdom

Previous full time posts

2010 Senior Researcher

*Center for Complex System, Institute for Social Studies
University of Warsaw
ul. Stawki 5/7, 00 - 183 Warsaw.*

- Worked with Professor Andrzej Nowak on a book about Complex Systems Science approach to Social Psychology, to be published in 2013 by Springer

2006-2010 Senior Researcher

*Institute for Scientific Interchange
Villa Gualino, via Settimio Severo 65, 10133 Torino, Italy*

- Scientific management of three FP6 projects in the field of Complex Systems, with a total budget of 5 M€ over 3 to 4 years
- Local supervision of 5 PhD students, all of whom have completed

1990-2006 Professor of Artificial Intelligence

School of Computer Science, University of Manchester, United Kingdom

- Set up and ran their first PhD program, raising the annual intake to over 30 students
- Head of the Artificial Intelligence group

1988-91 Scientific Director (part-time)

Foundation for Knowledge-Based Systems, Rotterdam, The Netherlands

- Purpose: strategic research in the area of knowledge-based systems
- Set up by SPIN, the Dutch equivalent of Alvey, with an injection of Hfl 10,000,000 (€ 4,500,000) over five years
- Raised an equivalent amount from industry and universities
- Responsible for the allocation of these funds to five projects, and control over the progresses of these projects over 4 years

1970-90 Professor of Cognitive Psychology

Rotterdam School of Management, Erasmus University, Rotterdam

- Responsible for setting up and running the Methodology group, which introduced students to scientific methods suitable for business
- Set up and ran their first PhD programme

1968-70 Senior Lecturer in Psychology

Manchester Business School, University of Manchester, UK

- Set up and ran their first PhD programme
- Designed and ran courses in decision-making and problem-solving

1963-64 Science teacher

United Nations Relief & Works Agency, Beirut

- Worked at a residential training college for Palestinian refugees
- Set up the College's library system

- Set up an inventory registration system to prevent theft

1959-63 Student apprentice and graduate engineer

Babcock & Wilcox, Ltd., London & Renfrew

- Followed their graduate training scheme, spending about a month in each department
- Set up a waste-metal recovery scheme, separating scrap by category
- Designed a safe container carrier for spent nuclear fuel rods which was later built

Previous visiting posts

- 2004** Visiting Fellow (for 6 months)
Psychology Department, Stanford University, Palo Alto, California, USA
- 2001** Visiting Fellow (for 6 months)
*Center for the Study of Language and Information,
Stanford University, Palo Alto, California, USA*
- 1997** Visiting Fellow (for 6 months)
Psychology Department, Stanford University, Palo Alto, California, USA
- 1994** Visiting Fellow (for 6 months)
Psychology Department, Stanford University, Palo Alto, California, USA
- 1983** Visiting Fellow (for 6 months)
*Psychology Department, Nijmegen University &
Max-Planck Institute for Psycholinguistics, Nijmegen, The Netherlands*
- 1979** Visiting Fellow (for 5 months)
Psychology Department, Stanford University, Palo Alto, California, USA
- 1970-72** Guest research fellow (for one-third time)
*Institute for Cognition Research
Psychology Laboratory, Amsterdam University, The Netherlands*
- 1965** Research assistant to Prof. A. Newell (for 3 months)
*Computer Science Department, Carnegie-Mellon University, Pittsburgh,
USA*

Higher Education

1964-68 **University postgraduate in Industrial Administration**
Carnegie-Mellon University, Pittsburgh

DEGREE: Ph.D. in Industrial Administration (1969)

EXAMINATIONS PASSED:

Major: Organisations and social behaviour

Minors: Business environment
Cognitive processes
Quantitative methods

AWARDS:

1967-68 Research Fellowship from the N.I.M.H., U.S.A.

1965-67 N.A.T.O. Studentship from the SSRC, Great Britain

1964-65 Mellon Fellowship from the university

THESIS SUPERVISOR: Prof. H.A. Simon

1959-62 **University undergraduate in Engineering**
Gonville & Caius College Cambridge University

DEGREES: B.A. (1962); M.A. (1966)

EXAMINATIONS PASSED:

1963 Diploma in the Principles of Industrial Management (now a Part II of the
Mechanical Sciences Tripos)

1962 Mechanical Sciences Tripos, Part I with Second class, upper division, honours

1961 Preliminary exam of the Mechanical Sciences Tripos with First class honours

AWARDS:

1959-62 State scholarship

Open college scholarship in mathematics

Industrial award from Babcock & Wilcox, Ltd.

Member of

AISB, Association for the study of Artificial Intelligence and the Simulation of Behaviour
(1998-2005 AISB Committee; 1998-2004 Treasurer)

AAAI, American Association of Artificial Intelligence

NVKI, Nederlandse Vereniging voor Kunstmatige Intelligentie (1970-1990)

PSYCHON, The Foundation for Psychology, The Netherlands (1970-1990)

Research grants

2006-2009 € 2,000,000 over 3 years, from FP6, European Commission:

DAPHNET: Dynamic Analysis of Physiological Networks.

PI: Professor Sorin Solomon.

Four physiological functions were studied: the cardio-vascular system, brain activity (EEG), motor control (gait and posture) and sleep. Several long-term signals were collected from each function. Algorithms were developed to assess the long-term effects and inter-relations between signals representing these functions. These algorithms, using dynamic synchronization and cross-correlations patterns, enabled the construction of physiological networks. The momentary state of these networks, together with the properties of each signal, was used to give a picture of the health status of individuals, e.g. their susceptibility to a further heart attack, Parkinson's disease, etc. The project resulted in 1500 recordings of physiological signals from 43 experiments, 10 new algorithms and 43 scientific papers. See <http://www.daphnet.eu/> for further information.

2005-2009 € 1,500,000 over 4 years, from FP7, European Commission:

CO3: Common Complex Collective Phenomena in Statistical Mechanics.

PI: Professor Sorin Solomon.

The failure of equations of the type used in classical mechanics and thermodynamics to describe correctly the fundamental properties of life, cognition, society and economy was traditionally attributed to unknown details about (respectively) the chemical reactions, brain activity, human behaviour etc. The problem with these equations is that they ignored the discrete character of the individual components of those systems (enzymes, cells, citizens). We studied the application of the AB model, probably the simplest system able to provide a basic intuition about the adaptation, localization and survival of individual components in noisy environment, in these environments. We applied the AB model, and some extensions that we developed, to concrete processes in complex systems in Biology (B cell dynamics), Social Sciences (the recovery of Polish counties during the transition years) and Economics (venture capitalists and start-ups; the productivity of firms in Italy) and obtained a deeper understanding of these phenomena. These results were presented to the EC at a Colloquium in Warsaw. The project resulted in 50 scientific papers. See <http://co3.isi.it> for further details.

2005-2009 €1,400,000 over 4 years, from FP7, European Commission:

GIACS: General Integration of the Applications of Complexity in Science.

PI: Professor Sorin Solomon.

GIACS was a platform for connecting people from various complexity application areas, helping them to contact the appropriate STRePs. We established channels for coordinating the STRePs involved in Complexity Science and enabled them to self-organize. We staged events at places where scientists from different STRePs could meet, teach and learn from one another, and together they have grown a new generation of interdisciplinary young researchers. The project resulted in 122 workshops and conferences, including four highly successful annual European Complexity

Conference (ECCS); the setting-up of the (European) Complex Systems Society and the spread of Complex Systems ideas into several fields, including the Social Sciences. See <http://giacs.isi.it> for further particulars.

1996-97 £40,000 over 6 months, from EPSRC, UK.

Visiting Fellowship for Prof. Nissim Francez from Technion University, Haifa, Israel.

To work on the logic of natural language. Resulted in 2 scientific papers.

1994-96 £24,000 over 2 years, from Ferranti-Thompson, Plc.

Classification with Small Data Sets.

Developed a program to learn to distinguish between various under-water sounds on the basis of a very few data points. One PhD, 2 scientific papers.

1989-92 HFl. 4,200,000 (€ 2,100,000) over 4 years.

From the Ministry of Agriculture and Fisheries and the Foundation for Knowledge-Based Systems, Rotterdam.

ANIMAL FARM: an intelligent knowledge-based computer system for integral management in animal husbandry.

Built a model of the factors affecting the productivity of dairy farms in the Netherlands, using a hierarchical model of the many factors that affect the output of milk. The result was an AI reasoning system, CAMEL, which could also be applied to other domains. 4 PhDs, 7 scientific papers.

1988-92 HFl. 2,500,000 (€1,250,000) over 5 years.

From the Foundation of Knowledge-Based Systems, Rotterdam.

To develop a method for building knowledge-based interfaces for computer systems.

Using the data from many and various data sets collected from buoys in the sea, an interface was developed that enabled a user to predict the likely sea state in a given region and for a given time. The outcome was generalisable to other domains with data stored in different formats. This was a precursor to the Semantic Web. 2 PhDs, 3 scientific papers.

1988-92 8 man years over 4 years.

From the Rotterdam School of Management, Erasmus University.

To develop a theory for designing knowledge-based interfaces. 2 PhDs.

1987-92 4 man years over 4 years

From the Rotterdam School of Management, Erasmus University.

To simulate the operation of a commodity market (oil), using AI techniques.

The result of this PhD was an Expert System, based on knowledge gained over a year from a trader in the spot oil market. It was successful in predicting the movement of the market during a four day window, provided predictions were made in roughly a third of the time. Resulted in one book and one conference presentation.

1986-91 4 man years over 4 years.

From the Rotterdam School of Management, Erasmus University.

To model the planning and process of implementing computer systems in organisations.

This PhD resulted in an account for difference in performance of different IT groups in a large IT company: the difference was due mainly to an ability to recognise and recover from overruns.

1985-88 4 man-years over 4 years.

From the Rotterdam School of Management, Erasmus University.

To develop a shell for designing Intelligent Interfaces to Data Bases.

Resulted in a PhD which formed the basis of the Animal Farm project (see above).

1983-86 3 man-years over 3 years.

From the Netherlands Council for Pure Scientific Research (Z.W.O.) via the Foundation for Psychonomic Science

A model for the semantics of function words in Dutch and English.

Resulted in 6 journal publications on the semantics of temporal propositions.

1981-82 2 man-years over 2 years

From the Netherlands Council for Pure Scientific Research (Z.W.O.) via the Foundation for Psychonomic Science

The semantics of subordinating conjunctions.

Resulted in 6 journal publications on the semantics of subordinating conjunctions.

Teaching

Students supervised

Institute for Scientific Interchange, Turin

PHD STUDENTS (CO-SUPERVISOR):

2006-10 Samir Hamichi
2006-09 Volker Nannen
2006-09 Giancarlo Mosetti

Computer Science Department, Manchester University

PHD STUDENTS:

2003-10 Armin Shams
2003-08 Hossein Sharif
2003-07 Shenghui Wang*
2002-06 Gilles Daniel*
2001-08 Robert Woolfson
1999-03 An Yu*
1994-96 Chun Li, RA part-time*
1993-97 George Paliouras*

MPhil/MRES STUDENTS:

1997-8 Alan Todd*
1996-7 Ramachandran Srinivasan(9/98)
1992-3 Richard Lee(4/94), Vaughan Marks(12/94), George Paliouras*

MSC STUDENTS:

2002-3 Pascault*, Wang*, Zhou*
2001-2 Daniel*, Yang*
2000-1 Kalyvas*, Shaha*, Steer*
1999-00 Bowen(04/02), Chin*, Guesde*, Robertson (12/00)
1998-9 An Yu*, Ben Beever(4/00), Naveed Iqbal(?/00)
1997-8 Barrett*, Soulez*
1995-6 Clarke*, Davies(?/99), Minhas (withdrawn), Yang*
1994-5 Sketcher*, Westaway*
1993-4 Capstick(10/95), Chan*, Miyazaki*, Rohrer*
1992-3 Bewes*, Howarth*, Mann(9/94), Mueller*

Rotterdam School of Management, Erasmus University

PHD STUDENTS:

1989-94 Henk Hogeveen, RA part-time(12/94)*
1989-94 Thijs Spigt(10/94)
1987-91 Andre Bialowas(12/91)*
1986-91 Jos Schreinemakers, RA part-time(7/91)*
1986-90 George Beers(9/90)*

* student submitted on time.

Courses taught

Computer Science Department, Manchester University

PH.D CORE COURSES

1994-06 CS710 Thesis writing seminar
1992-06 CS700 Thesis proposal seminar

M.Sc (COGNITIVE SCIENCE) CORE COURSES

1990-00 CS641 Knowledge-based systems

B.Sc ELECTIVE COURSES

2003 CS244 Computing with Natural Language
1999-01 CS340 Foundations of Artificial Intelligence
1995 CS241 Sub-symbolic Artificial Intelligence
1992-93 CS141 Introduction to Artificial Intelligence (Labs)
1990-94 CS341 Knowledge-based systems.

Rotterdam School of Management, Erasmus University

PH.D. CORE COURSE

1987-90 Research methods in the Social Sciences

MBA CORE COURSES:

1987-90 Decision Support Systems & Knowledge-Based Systems (with Prof. van Nunnen)
1986 Management Information Systems and Computer Science
1982-85 Information processing project
1981-85 Computer modelling on micro-computers (workshop)
1978-84 INTOP management game
1977-84 Introduction to social skills training (workshop)
1977-85 Human information processing
1971-76 Decision-making and problem-solving

MBA ELECTIVE COURSES:

1986-89 Knowledge-Based Systems
1986-88 Functional programming
1978-85 Artificial Intelligence
1979-84 Cognitive Psychology

Foundation for Management, Rotterdam

CORE EXECUTIVE COURSE

1971-73 Managerial decision-making (with Prof. A. Rowe)

MBA COURSES:

1970 Organisational design (seminar)
1969-70 Basic concepts in Psychology
1969-70 Decision-making and problem-solving
1969-70 Behaviour in small groups (workshop)
1969-70 Mathematical models in business (seminar)

Chairing Committees, etcetera

including the main aim or achievement of each committee

Complexity Science, Warwick University

2009-10 - chair of the advisory board

AISB (Association for the study of Artificial Intelligence and the Simulation of Behaviour)

This was the original AI society

1998-04 Treasurer of AISB

- converted AISB into a Limited Liability Society and brought the Society from being on the verge of bankruptcy to having a capital of about £20,000, sufficient to keep the society going for a year without further income.

1997 Chair for the AISB annual convention held at the University of Manchester

1997 Chair for the ECSS (European Cognitive Science Society) congress

Computer Science Department, Manchester University

1990-06 The Artificial Intelligence group

- formed the AI staff and research students into a cohesive group
- designed and set up an undergraduate Honours Course in Artificial Intelligence

1990-93 The postgraduate committee

- designed a new Masters in Business Information Systems course
- set up data-base of applicants and students to support the administration

1993-96 The Research and Graduate Division

- set up procedures for this new division
- introduced 1 fte administrator to support the division's activities
- designed a new Masters in Research (Informatics) Course; acquired 10 EPSRC grants

The Government of the Netherlands

1982-83 *The Committee for Artificial Intelligence in the Netherlands*

- advised the Ministry of Science & Education to set up 4 major research programmes eventually implemented in the Foundation for Knowledge-Based Systems

1971-72 *The working party for a Ph.D. programme in management in the Netherlands*

- advised the Ministry of Economic Affairs to set up such a programme; not implemented at the time, but introduced in 1987

N.O.B.O. (Nederlands Organisatie voor Bedrijfskunde Onderzoek)

- promotes and coordinates the research programmes in Management in universities.

1986-90 Chairman

- aim was to be accepted as a Foundation by the Dutch Science Research Council

PSYCHON (The Foundation for Psychological Research in the Netherlands)

channels research grants in Psychology from the Dutch Science Council

1989-90 The working group for Language and Memory

1982-86 The working group for Semantic Memory

- responsible for improving the quality of research applications in these areas

- achieved highest ratio of accepted projects of all working groups in PSYCHON

Erasmus University, The Netherlands

- 1987-88 The Rules of Thumb congress committee
- ran the largest congress in the 75th anniversary of the founding of the University
 - secured funding for 5 videos, worth Hfl 250,000 (€110,000)

Rotterdam School of Management, Erasmus University, The Netherlands

- 1986-90 The Research Committee
- introduction of research programme planning
- 1983-85 The Information Sciences department
- introduction of micro computers into the core curriculum
- 1982-83 The Social Sciences department
- 1982-83 The Education Committee
- implementation of specialisations
- 1980-83 The Elective Course Committee
- introduction of specialisations for future job market
- 1977-80 The Education Committee
- introduction of a new problem-oriented MBA curriculum

Manchester Business School, UK

- 1969-70 Director of Studies, PhD program
- set up the first PhD programme in Management in the UK which provided course work .