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Biographical Sketch



I graduated from the University of Dublin, Trinity College, in 1979 with a degree in engineering (B.A., B.A.I.). I completed my Ph.D. in 1985 and was elected a Fellow of Trinity College in 1991.

I am a research professor at Carnegie Mellon University Africa, located in Rwanda, where I'm helping to grow the robotics program, embracing teaching, research, and outreach to other universities in Africa.

I began my professional career in 1979 as a software engineer with Westinghouse Electric where I worked in the USA and Ireland until 1981 when I embarked on a Ph.D at Trinity College Dublin.

In 1983, I was appointed a Lecturer in the Department of Computer Science in Trinity College Dublin. From 1991 to 1993, I took a leave of absence to work as a Project Officer in the European Commission in the areas of high performance computing and software engineering.

In 1995, I was appointed to the Chair of Computer Science at the National University of Ireland, Maynooth, Ireland as Professor and Head of Department. I was responsible for the development and launch of new B.Sc. and M.Sc. degrees in computer science and software engineering. I left Maynooth in 1999.

From 1998 to 2005 I worked at Etisalat University College, UAE (later to become Khalifa University), as Professor of Computer Engineering, Head of Department, and Director of Postgraduate Studies (Acting).

In 2002, I spent a year at Science Foundation Ireland (SFI) as a Senior Programme Officer, with responsibility in the areas of computer science and software engineering.

From 2002 to 2005, I coordinated ECVision – the European Research Network for Cognitive Computer Vision Systems. From 2006 to 2008 I coordinated euCognition – the European Network for the Advancement of Artificial Cognitive Systems (www.eucognition.org). From 2004 to 2010, I was the technical coordinator of the EU-funded RobotCub project (www.robotcub.org) that developed the iCub humanoid robot.

I was a visiting professor at the University of Genova in 2005 and 2006. In late 2006, I returned to the UAE as Professor of Computer Engineering at Khalifa University of Science, Technology, and Research with the specific brief to develop their post-graduate degree programs. In 2011, I joined the Institute for Cognitive Systems at the Technical University of Munich as a senior researcher.

I was appointed Professor of Informatics at the University of Skövde, Sweden, in March 2013. The same year I joined the Advisory Board of Innopolis University in Russia where I was also a visiting professor.

In January 2017, I joined Carnegie Mellon University Africa in Rwanda as a Teaching Professor and in May 2020, I returned to Europe to pursue research in cognitive robotics.

I joined the research team at Institute for Artificial Intelligence, University of Bremen in August 2020, working on cognitive robots that can carry out everyday activities. I am responsible for the implementation of the situation model framework in the CRAM cognitive architecture.

In October 2021, I returned to Carnegie Mellon University Africa as a Visiting Professor to help grow the robotics program, embracing teaching, research, and outreach to other universities in Africa.

Over the past forty-two years, I have authored four books, edited another five, and published more than 140 papers.

I have held editorial positions of several journals. At present, I am an associate editor of Cognitive Systems Research. I am also a series editor of the Springer book series *Cognitive Systems Monographs*.

In June 2000, I organized the 6th European Conference on Computer Vision (ECCV 2000) in Trinity College Dublin and I served as both General Chair and Program Chair. I am a member of the Board of ECCV.

I am a founding co-chair of the IEEE Robotics and Automation Society Technical Committee for Cognitive Robotics (www.ieee-coro.org).

I am a Chartered Engineer and Fellow of the Institution of Engineers of Ireland (Engineers Ireland), a Senior Member of the IEEE, and Research Fellow at the Kigali Collaborative Research Centre, Rwanda.

Table of Contents

	Page
Personal Information	1
Qualifications	1
Honours	1
Interests	1
Employment History	2
Offices Held	4
Academic Experience	7
Funded Research Projects	9
Funded Teaching Projects	10
Supervision of Higher Degrees	11
Experience in Leadership and Strategic Planning	13
Publications	15

Personal Information

Name: David Vernon
Date of Birth: 8th March 1958
Marital Status: Married, with two adult daughters
Home Address: No. 4, KG637 Street, Kigali, Rwanda.
Email Address: david@vernon.eu
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Qualifications

Academic Qualifications

B.A., B.A.I.	University of Dublin, Trinity College, Ireland.	(1979)
Ph.D.	University of Dublin, Trinity College, Ireland.	(1985)
M.A.	University of Dublin, Trinity College, Ireland.	(1986)

Professional Qualifications

Senior Member of the Institute of Electrical and Electronic Engineers (IEEE)
Chartered Engineer, FIEI: Fellow of Engineers Ireland (Institution of Engineers of Ireland).

Honours

- Selected by the IEEE Robotics and Automation Society (RAS) to create a course on cognitive robotics under the CEMRA program (2019).
- Fellow of the German ZiF research group “Enabling Cognitive Behavior of Humans, Animals, and Machines: Situation model Perspectives” (2019 – 2020).
- Research Fellow, Kigali Collaborative Research Centre (2017 –).
- Recipient (with three other co-chairs) of the 2017 Most Active Technical Committee Award from the IEEE Robotics and Automation Society (RAS).
- Co-Chair and Founding Member of the IEEE-RAS TC on Cognitive Robotics (2014 –).
- Member of the Editorial Board of *Cognitive Systems Research* (2015 –).
- Member of the Editorial Board of *The IEEE Trans. Cognitive and Developmental Systems* (2016 – 2018).
- Member of the Editorial Board of *The Computer Journal* (2013 - 2015).
- Advisory Board Member, Innopolis University, Russia (2013 – 2016).
- Nominated for Dozentenpreis (prize for teaching excellence), Technical University of Munich (2013).
- Editor of the Springer book series *Cognitive Systems Monographs* (2008 –).
- Member of the Editorial Board of *Cognitive Computation Journal* (2008 – 2013).
- Member of the Editorial Board of *Image and Vision Computing Journal* (2008 – 09).
- Senior Membership of the IEEE (2003).
- General & Program Chairman, 6th European Conference on Computer Vision - ECCV, Trinity College Dublin (2000).
- Fellow of Trinity College Dublin & Member of the Senate of the University of Dublin (1991).
- Chartered Member of the Institution of Engineers of Ireland (1990).
- Awarded the Collen Prize for best final year engineering project, Trinity College Dublin (1979).

Interests

I am a keen road cyclist and I have completed the Wicklow 200, the Sean Kelly Classic, an Etape du Tour, the Marmotte, the Vätternrundan, and a seven-day 777 km fundraising tour of Rwanda. I’ve recently taken up mountain biking. I’m passionate about cognitive robotics and I write software whenever I have the opportunity. My Myers-Briggs Type is INFJ.

Employment History

- 2022 - **Carnegie Mellon University Africa**
Rwanda
Position: Research Professor
Duties: Develop a sustainable research program in robotics and build links with industry and universities in Africa.
- 2021 - 2022 **Carnegie Mellon University Africa**
Rwanda
Position: Visiting Professor
Duties: Grow the robotics program, embracing teaching, research, and outreach to other universities in Africa; please refer to *Academic Experience*, p. 6.
- 2020 - 2021 **Institute for Artificial Intelligence, University of Bremen**
Germany
Position: Senior Researcher
Duties: Research and development in cognition-enabled robot manipulation in everyday activities, with specific responsibility for cognitive architectures.
- 2017 - 2020 **Carnegie Mellon University Africa**
Rwanda
Position: Teaching Professor
Duties: please refer to *Academic Experience*, p. 6.
- 2013 - 2016 **University of Skövde**
Sweden
Position: Professor of Informatics
Duties: please refer to *Academic Experience*, p. 6.
- 2011 - 2013 **Institute for Cognitive Systems, Technical University of Munich**
Germany
Position: Senior Researcher
Duties: please refer to *Academic Experience*, p. 6.
- 2010 - 2011 **Independent Researcher: Cognitive Systems and Computer Vision**
- 2006 - 2010 **Khalifa University of Science, Technology and Research**
United Arab Emirates
Position: Professor of Computer Engineering & Head of Department
Duties: please refer *Academic Experience*, p. 6.
- 2005 - 2006 **University of Genova**
Italy
Position: Coordinator of *euCognition* – The European Network for the Advancement of Artificial Cognition Systems (www.euCognition.org). Technical coordinator of the *RobotCub* project (www.RobotCub.org)
Duties: Coordination of the network activities. Coordination of the development of a cognitive humanoid robot, with particular responsibility for the cognitive architecture.

- 2002 **Science Foundation Ireland**
Ireland
Position: Senior Programme Officer (Software – ICT).
Duties: Development and management of research funding programmes; liaison with the academic and industrial community.
- 1998 - 2005 **Etisalat College of Engineering (later to become Khalifa University)**
United Arab Emirates
Position: Professor of Computer Engineering, Head of Department, & Acting-Director of Postgraduate Studies.
Duties: please refer *Academic Experience*, p. 6.
- 1995 - 1999 **National University of Ireland, Maynooth**
Ireland
Position: Professor of Computer Science and Head of Department.
Duties: please refer to *Academic Experience*, p. 6, and *Experience in Leadership and Strategic Planning*, p. 11.
- 1991 - 1993 **Commission of the European Communities**
Belgium
DGXIII Directorate General for Information Technologies, Telecommunications and Innovation, Brussels.
Position: Scientific Officer, Grade A6.
Duties: Co-ordination and administration of research projects; assisted in setting up *ESSI* – the European Systems and Software Initiative. See also *Experience in Leadership and Strategic Planning*, p. 11.
- 1983 - 1995 **Trinity College Dublin**
Ireland
Position: Lecturer and Information Services Project Officer.
Duties: please refer to *Academic Experience*, p. 6, and *Experience in Leadership and Strategic Planning*, p. 11.
- 1981 - 1985 **Trinity College Dublin**
Ireland
Ph.D. candidate.
- 1979 - 81 **Westinghouse Electric Corp.,**
Pittsburgh, PA, U.S.A.
Shannon, Ireland.
Position: Systems Software Engineer; System Integrator; Project Leader.
Duties: Development of a database maintenance system for the Westinghouse Energy Management Systems (EMS).
Design of a diagnostic module for a distributed control system.

Offices Held

- Member of the IEEE Robotics and Automation Society Women in Engineering Committee (2022 –).
- Co-organizer of a workshop on new horizons in cognitive robotics and AI exploiting recent advances for predictive control and prospective interaction between agents, 2018 IEEE International Conference on Robotics and Automation.
- Founding co-chair of the IEEE Technical Committee on Cognitive Robotics; www.ieee-coro.org (2015 - 2021).
- Chair of the Carnegie Mellon University Africa Admissions Committee (2018 – 2019).
- Joint coordinator of the AI and Cognition in Robotics Topic Group in the SPARC partnership for robotics in Europe (www.sparc-robotics.net)
- Associate editor of *Cognitive Systems Research* (2015 –).
- Series Editor of the Springer book series *Cognitive Systems Monographs* (2008 –).
- Associate editor of the *IEEE Transactions on Cognitive and Developmental Systems* (2015 - 2017).
- Member of the editorial board of *The Computer Journal* (2013 - 2015)
- Member of the editorial board of *Cognitive Computation* (2008 - 2013).
- Member of the editorial board of *Image and Vision Computing Journal* (2008 - 2009)
- Member of the editorial board of *AI Magazine*, published by the AAAI (2007 - 2012).
- Guest Editor of a special issue of *Image and Vision Computing* on Cognitive Vision Systems, Vol. 26, No. 1, January 2008.
- Coordinator of euCognition – the European Network for the Advancement of Artificial Cognitive Systems (2006 - 2008).
- Member of the Steering Board of the Imaging Faraday Partnership, UK (2004 - 2006).
- Coordinator of ECVision – the European Research Network for Cognitive Computer Vision Systems (2002 - 2005).
- Member of the Board of the European Conference on Computer Vision ECCV (2000 -).
- General Chair of the Sixth European Conference on Computer Vision – ECCV 2000 – Trinity College Dublin (2000).
- Reviewer for various journals, including: *IEEE Transactions on Cognitive and Developmental Systems*, *Cognitive Systems Research*, *Constructivist Foundations*, *International Journal for Robotics Research*; *Artificial Intelligence*, *Software Practice and Experience*, *IEEE Transactions on Evolutionary Computing*, *Image and Vision Computing*, *Optical Engineering*, *Interaction Studies*, *IEEE Transactions on Autonomous Mental Development*, *Journal of the Optical Society of America*, *Machine Vision Applications*, *Robotics and Autonomous Systems*, *Advanced Robotics Systems*,
- Member of the Program Committee of various conferences, including:
 - 17th Conference on Principles of Knowledge Representation and Reasoning (KR 2020)
 - Workshop on Cognitive Vision - Integrated Vision and AI for Embodied Perception and Interaction, Seventh Annual Conference on Advances in Cognitive Systems (ACS 2019)
 - 7th International Workshop on Artificial Intelligence and Cognition (AIC2019)
 - International Symposium on Robotics Research (ISRR 2019)
 - IEEE International Workshop on Advanced Robotics and its Social Impacts (2018)
 - First IEEE International Conference on Robotic Computing (2017)
 - International Conference on Robot Ethics and Standards (ICRES 2018, 2020)

- EuroAsianPacific Joint Conference on Cognitive Science (2015)
 - 10th International Conference on Computer Vision Systems (2015)
 - 14th International Conference on the Synthesis and Simulation of Living Systems (2014)
 - 27th International Florida Artificial Intelligence Research Society Conference (2014)
 - Brain Inspired Cognitive Systems (BICS 2012, 2013)
 - Third International Workshop on Cognitive Information Processing (CIP 2012)
 - International Conference on Cognitive Systems, University of Karlsruhe, 2008
 - International Cognitive Vision Workshop (ICVW 2007)
 - IEEE/RSJ 2007 International Conference on Intelligent Robots and Systems (IROS 2007)
 - European Conference on Complex Systems (ECCS 2006, 2007)
 - IEEE-RAS International Conference on Humanoid Robots (Humanoids 2006)
 - 4th International Conference on Development and Learning (ICDL '05)
 - IEEE International Conference on Computer Vision (ICCV '05)
 - IEE International Conference on Visual Information Engineering - VIE 2005 - Convergence in Graphics and Vision (2005)
 - International Conference on Computer Vision Systems - ICVS (2003)
 - European Conference of Artificial Intelligence (2002)
 - Computer Vision and Pattern Recognition Conference (CVPR), Montreal, Canada (2002)
 - Second International Workshop on Computer Vision Systems, Vancouver, Canada (2001)
 - 8th Int. Workshop on the Cognitive Science of Natural Language Processing (1999)
 - Irish Machine Vision and Image Processing Conferences (1998-2020)
 - IROS'96: IEEE/RSJ International Conference on Intelligent Robots and Systems (1996)
 - European Conference on Computer Vision (1994 - 2006)
- Member of the Board of the Irish Pattern Recognition Society (1999 -).
 - General Chair of the Joint Conference of the Optical Engineering Society of Ireland and the Irish Machine Vision and Image Processing Conference (OESI – IMVIP'98), National University of Ireland, Maynooth (1998).
 - Opponent (i.e. External Examiner) at Royal Institute of Technology, Stockholm, Sweden (2011), Instituto Superior Tecnico, Lisbon (2015), Linköping University (2016), Örebro University (2016).
 - External Examiner of the School of Computer Application, Dublin City University (1997-2001) and the Department of Computer Science and Information Systems, University of Limerick (1997-2000).
 - External Ph.D./M.Sc. examiner at University of Dublin, Trinity College (1996, 1997, 1998, 2001); University of Ulster (1998); Dublin City University (1995, 1998, 2000, 2007). University of Limerick (1994), Salford University (1995), Regional Technical College, Cork (1995).
 - Member of the Society of Photo-Optical and Instrumentation Engineers (SPIE) Chapter Committee (1996).
 - Information Systems Project Officer, Trinity College, Dublin (1993 to 1995)
 - Member of the Review Panel of the British Engineering and Physical Sciences Research Council (EPSRC) for Machine Vision Research Grants 1994, 1995, 1996.
 - Member of the Joint Steering Committee for Information Services and Information Technology of the Tallaght Regional Hospital (appointed 1994).
 - Chair of the Programme Committee of the ESPRIT Workshop on "Multisensor Applications", Brussels, November 1993.

- Member of the ESPRIT (European Strategic Programme for Research and Development in Information Technology) Basic Research Action Working Group in Vision; 1989 - 1991.
- Director of the Vision and Sensor Research Unit in the Irish Advanced Manufacturing Technology Programme: 1987 to 1990.
- Chair of the Programme Committee of the ESPRIT Basic Research Action Workshop on "Vision in Context", Killarney, Ireland, September 1991.

Academic Experience

I began teaching on a part-time basis in 1981 and in October 1983 I was appointed a Lecturer in Computer Science at Trinity College, Dublin. In 1990, I successfully passed the Merit Bar. During the past forty years, I have been responsible for the development of several new courses and degree programs at both undergraduate and postgraduate levels. Most of these courses are available online at www.vernon.eu.

- 2017 - 18-799 Applied Computer Vision, 18-799 Artificial Cognitive Systems, 18-799 Cognitive Robotics, 04-630 Data Structures and Algorithms for Engineers, 18-799 Robotics: Principles and Practice, 18-899 Neurorobotics, 18-899 Human-Robot Interaction. Carnegie Mellon University Africa, Rwanda.
- 2015 - 2016 IT920F Project Management; IT921F Cognitive Systems: M.Sc. & Ph.D., University of Skövde, Sweden.
- 2014 Cognitive Systems: Ph.D. School, University of Genova, Italy.
- 2014 - 2015 CS-CO-412 Algorithms and Data Structures, CS-AI-421 Artificial Cognitive Systems: Bachelor degree in IT, Innopolis University, Republic of Tatarstan, Russia.
- 2013 - 2016 IT919F / IT706A Scientific Theory in Informatics: M.Sc. & Ph.D., University of Skövde, Sweden.
- 2012 Cognitive Architectures: Diplom & M.Sc., Technical University of Munich, Germany.
- 2011 Cognitive Systems: Ph.D. School, University of Genova, Italy.
- 2006 - 2010 E424 Software Engineering; E314 Algorithms & Data-Structures, E313 Relational Database Systems: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 2004 - 2006 Cognitive Systems: University of Genova, Italy.
- 2003 - 2005 E412 Computer Interfaces: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 2000 - 2005 E424 Software Engineering: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 1999 - 2005 E410 Computer Graphics: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 1998 - 2001 E314 Algorithms and Data-Structures: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 1998 - 2001 E004 Computer Technology: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 1998 E415 Operating Systems: B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 1998 - 2001 E313 Relational Database Systems. B. Eng. in Computer Engineering, Khalifa University, United Arab Emirates.
- 1998 Designed a new B.Sc. in Organizational Information Technology Systems, a 4-Year honours degree which was targetted at meeting the needs of business and industry.
- 1997 Designed and implemented a new B.Sc. in Computer Science and Software Engineering, a 4-Year honours degree which complies with the ACM/IEEE Model Curriculum.
- 1996 Designed and implemented a new M.Sc. in Software Engineering, the first of its kind in Ireland.
- 1996 - 1998 M209: Object -Oriented Programming and C++: M.Sc. in Software Engineering at the National Univerity of Ireland, Maynooth, Ireland.
- 1995 - 1998 CS110: Introduction to Computer Systems: B.Sc. at the National University of Ireland, Maynooth, Ireland.
- 1995 - 1998 CS211: Data Structures II: B.Sc. at the National University of Ireland, Maynooth, Ireland.
- 1995 - 1998 CS410: Computer Vision: B.Sc. at the National University of Ireland, Maynooth, Ireland.

- 1995 Course Director of a new M.Sc. Degree in Computer Science, Trinity College, Dublin
- 1989 - 1991 Computer Science, 2nd year course, B.A.I. in Engineering Science, Trinity College Dublin, Ireland.
- 1989 - 1991 Computer Vision: M.Sc. in Computer Applications, Department of Computer Applications, Dublin City University.
- 1989 Computer Vision: M.I.E. (Masters of Industrial Engineering), Department of Industrial Engineering, University College Galway.
- 1988 - 1995 4BA10 Computer Vision: B.A. (Mod.) in Computer Engineering, 4th year course, Trinity College Dublin, Ireland.
- 1983 - 1988 Information Technology: M.Sc. in Physical Sciences in Medicine, Trinity College Dublin, Ireland.
- 1983 - 1988 Computer-Aided Engineering – Robotics and Robot Vision: B.A.I. in Engineering Science, 4th year course, Trinity College Dublin, Ireland.
- 1987 Computers and Society: B.A. (Mod.) in Computer Engineering; 2nd year course, Trinity College Dublin, Ireland.
- 1987 The Engineer and Society: B.A.I. in Engineering Science; 4th year course, Trinity College Dublin, Ireland.
- 1981 - 1987 Structured Programming: B.Sc. in Computer Science; 2nd year course, Trinity College Dublin, Ireland.

Funded Research Projects

- 2016-2017 **Horizon 2020 Coordination Action 688441: RockEU2 – Robotics Coordination Action for Europe Two**
Cognitive Systems Work Package Co-Leader
- 2014-2018 **FP7 Integrated Project 611391: DREAM – Development of Robot-Enhanced therapy for children with autism spectrum disorder (ASD).**
Research Director
- 2004-2010 **FP6 Integrated Project 004370: RobotCub – Robotic Open-Architecture Technology for Cognition, Understanding, and Behaviours.**
Technical Coordinator
- 2009-2010 **A Semi-autonomous Mobile Robotic C4ISR System for Urban Search and Rescue.**
UAE ICT Fund
- 2006-2008 **FP6 Coordination Action 26408: euCognition – the European Network for the Advancement of Artificial Cognitive Systems**
Network Coordinator.
- 2002-2005 **FP5 Coordination Action 35454: ECVision – European Research Network for Cognitive Computer Vision Systems**
Network Coordinator.
- 1998-2000 **Measurement and Analysis of 3-D Facial Structure for the Assessment of Reconstructive Surgical Procedures**
Enterprise Ireland Software Programme for Advanced Technology (PAT).
- 1996-1999 **ESPRIT research project 21894 funded by the CEC: Visual Intelligent Recognition for Secure Banking Services (VIRSBS).**
In collaboration with University of Genova, Italy, Ecole Polytechnique Federale de Lausanne, Switzerland, Instituto Superior Tecnico de Lisboa, Portugal, and Logitron s.r.l., Italy.
- 1996-1997 **ESPRIT research project 23009 funded by the CEC: Promotion of OMI by a user support network centre (PROMINENT).**
In collaboration with Institut für Mikroelektronik- und Mechatronik-Systeme, Germany, Joanneum Research, Austria, SINTEF, Norway, and University of Ulster, UK.
- 1996-1999 **ESPRIT research project 20557 funded by the CEC: High Speed Manipulation by Random Access Vision (RAMAP).**
In collaboration with Siemens, Germany, IMEC, Belgium, and Egemin, Belgium.
- 1994-1995 **ESPRIT Basic Research Action: HPCNet - Network of Excellence in High Performance Computing**
Founding Member.
- 1990-1993 **ESPRIT research project funded by the CEC: Glove-like Advanced Interface for the Control of Manipulative and Exploratory Procedures in Artificial Realities.**
In collaboration with Aitek Srl, Italy, Scuola Superiore S. Anna, Italy, TAG Ltd., U.K., Eidetics Ltd., Ireland, V.D.S. Spa., Italy.

Funded Research Projects

(Continued)

- 1990-1993 **BRITE/EURAM research project funded by the CEC: Optical In-Process Inspection of Electro-Plated Contact Surfaces.**
In collaboration with Siemens AG, Federal Republic of Germany, and Zenon SA, Greece.
- 1989-1991 **Strategic Research Contract from the Irish Science and Technology Agency: EOLAS.**
The purpose of this research is to develop "Applied Tools for Vision", requiring the design of a sixteen-node MIMD parallel processor (using transputer technology) and the development of an Application Programming Shell.
- 1989 -1991 **Fundamental Research in Neural Networks.**
Collaborative research with the Hitachi Dublin Laboratory (HDL), O'Reilly Institute for Communication and Technology, Trinity College.
- 1987-1989 **NBST (National Board for Science and Technology) Strategic Research Contract.**
Development of a reconfigurable vision processor for industrial machine vision applications using transputer technology.
- 1984-1989 **ESPRIT Project 419 - Image and Movement Understanding.**
Principal investigator. The objective of the project is the automatic understanding of general 3-D scenes using multiple stereoscopic 2-D images. This research was undertaken in collaboration with the University of Genova, the University of Nijmegen, CAPTEC Ltd. in Dublin, and VDS Ltd. in Florence.

Funded Teaching Projects

- 2019-2020 **IEEE Robotics and Automation Society Program for Creation of Educational Material in Robotics and Automation (CEMRA).**
Awarded a grant to prepare an introductory course on cognitive robotics for global dissemination to the cognitive robotics community.

Supervision of Higher Degrees

Completed Degrees

P. Kenny	M.Sc. 1987	Digital Image Registration Techniques Applied to Radio-Aerosol Imaging in Nuclear Medicine.
K. Dawson	Ph.D. 1991	3-D Computer Vision for Automated Part Manipulation.
Y. Zhao	M.Sc. 1991	An Entropy view of Stereo Fusion.
M. Flanagan	M.Sc. 1992	Perceptual Grouping Processes.
P. O'Neill	M.Sc. 1992	Real-Time Visual Pose Estimation of Human Hands.
M. Jones	M.Sc. 1993	Visual Servo-Control of Robots by Kohonen Nets.
R. Doyle	M.Sc. 1994	Adaptive Servo-Control of a Scara Robot.
R. Waldron	Ph.D. 1995	Language and the Construction of Reality.
T. Lysaght	M. Comp.Sc. 1996	Timbre Morphing
D. Barry	M.Sc. 1998	Active Visual Attention
P. Butler	M.Sc. 1998	3-D surface profiling and analysis of human faces in reconstructive surgery
A. Trenaman	Ph.D. 1999	Evolutionary Computation
P. Thomas	M.Sc. 2002	Automatic Image Registration using Genetic Algorithms
A. Kulaib	M.Sc. 2009	2-D Binaural Sound Localization
E. Basaeed	M.Sc. 2009	Multi-spectral Image Fusion for Victim Detection in Urban Search-And-Rescue Robots
H. AlKaabi	M.Sc. 2009	A Human-Robot Interface for Urban Search-And-Rescue Robots
R. Abdullah	M.Sc. 2009	Selective Visual Attention for Urban Search and Rescue (USAR) Systems

Experience in Leadership and Strategic Planning

Apart from my general professional responsibilities over the past forty-two years, I have gained significant experience in strategic planning, in both leadership and support roles.

The European Systems and Software Initiative

Arising from my appointment as a Scientific Officer in the Commission of the European Communities (now the European Commission) in 1991, where I worked for over two years, I was exposed to many facets of project co-ordination and administration in ESPRIT (European Strategic Programme for Research and Development in Information Technology). However, my most significant contribution to strategic planning was as a member of a small team which developed and launched the pilot phase of the innovative European Systems and Software Initiative (ESSI). The ESSI programme model involved intensive consensus-building in industry and reflected the needs of small and medium-sized companies across Europe. Its innovative character necessitated a wide-spread awareness programme prior to and following the launch of the call for proposals in which I was centrally involved. The success of ESSI resulted in its being adopted as a template for best practice in other Commission programmes.

The Development of a Policy on Information Systems for the University of Dublin

In 1993 I was invited by Trinity College Dublin to return from leave of absence at the European Commission to take up the post of Information Systems Project Officer with the remit of coordinating the development of a comprehensive policy on information systems. Under the stewardship of the Bursar of the College, Prof. Frances Ruane, the chair of the Information Systems Policy Development Group (or ISPDG as it became known), some 130 people participated in this exercise and approximately 31,000 hours of combined effort were expended over the next two years in bringing it to a successful conclusion.

My activities in this exercise focused on:

- its total commitment to transparency and consensus-building; the vast bulk of the work being concerned with empowering and equipping users to identify their information needs and the subsequent construction of a common vision for information system;
- the clear recognition that information systems are people- and organization-centred and that technology, *per se*, plays only a supporting role;
- the successful preparation of a plan for the re-organization of the University's IT Centre to enable it to provide the service the users had identified;
- the successful preparation of a 5-year IT plan comprising 44 projects for the commissioning of information systems and services.

Head of the Department of Computer Science, National University of Ireland, Maynooth

In 1995 I was appointed to the Chair of Computer Science at Maynooth and the Headship of the Department. At the time, the Department operated a small number of courses at an undergraduate level as part of the general science degree programme. During my tenure in Maynooth, I was responsible for the strategic development of the Department in many key areas such as:

- design and implementation a new B.Sc. in Organizational Information Technology Systems, a 4-Year honours degree which is targetted at meeting the needs of business and industry;
- design and implementation a new B.Sc. in Computer Science and Software Engineering, a 4-Year honours degree which complies with the ACM/IEEE Model Curriculum;
- design and implementation of a new M.Sc. in Software Engineering, the first of its kind in Ireland;
- the launch of a human resources development and training policy;
- the commissioning of a new information systems infrastructure;
- a doubling of academic and support personnel;
- successfully securing funding for a new Computer Science building.

Coordinator of the European Research Network for Cognitive Vision Systems

For the three years from 2002 to 2005 I coordinated *ECVision*, the European Research Network for Cognitive Vision Systems (www.ecvision.org). One of my responsibilities was to lead the development of a research roadmap that will guide the evolution of this embryonic discipline over the next ten years. This was a challenging task because there is significant disagreement in the community as to the extent and focus of the discipline. Nevertheless, the roadmap had to reflect a general consensus and the challenge was to achieve this without disenfranchising anyone. After many meetings, workshops, and bi-lateral communications, we agreed a plan which is the product of over forty researchers, which represents their many different viewpoints in a fair and balanced manner, and which sets out an inclusive and ambitious research agenda.

Coordinator of the European Network for the Advancement of Artificial Cognitive Systems

For the three years from 2006 to 2008 I coordinated *euCognition*: the European Network for the Advancement of Artificial Cognitive Systems (www.eucognition.org). This is an interdisciplinary network with members drawn from a great variety of backgrounds, including computer science, cognitive science, neuroscience, psychology, artificial life, robotics, and philosophy. My role as coordinator of the network was to engender discussion and debate in the scientific community with a view to focussing research efforts, creating new educational resources, and advancing the cause of this emerging discipline. A key challenge of the network was to foster interaction between all the many different scientific sectors involved in this multi-disciplinary area and to help create truly interdisciplinary perspectives. By 2008, membership has grown to 370, exceeding the stated target by 300%. The European Commission subsequently funded a follow-on project to continue the network in 2009-2011. There are now more than 900 members.

Member of the Academic Advisory Panel of Innopolis University

As member of its Academic Advisory Panel, since 2013 I have contributed extensively to the launch of Russia's first university dedicated to advanced computer science and its application (university.innopolis.ru/en). I have advised on curriculum development, participated in student recruitment, reviewed approximately one hundred applications for faculty positions and interviewed almost half of the applicants. I have also assisted with the design of the university organizational structure and advised on the creation of most of their academic procedures, including the Faculty Development and Evaluation manual, for which I designed the annual evaluation process. I also taught two courses to the inaugural class and participated in industrial liaison exercises.

Research Director of the DREAM Project

DREAM (www.dream2020.eu) is a 4.5-year European project aimed at developing software for robot-enhanced therapy for children with Autism Spectrum Disorder (ASD). Our goal is to extend robot-assisted therapy (RAT) by giving the robot greater autonomy to conduct the therapy intervention. To achieve the required level of autonomy, the robot must be able to gather sensory data about the child, assess psychological disposition and behaviour, and adjust its actions accordingly when mediating the therapy intervention. I also have responsibility for software integration, a task made easier by our adoption of Component-Based Software Engineering (CBSE).

SPARC – The Partnership for Robotics in Europe

Since February 2016, I have been a partner in a coordination and support action for SPARC – The Partnership for Robotics in Europe – which brings together the European Commission and euRobotics aisbl, an association for Europe's industrial and academic stakeholders in robotics. I have specific responsibility for coordinating the activities on cognitive systems (www.cognitiverobotics.eu). Our goal is to engage the robotics, AI, and cognitive systems communities in Europe with the goal of formulating a meaningful strategy to make cognitive robotics a mainstream industrial technology.

Chair of the Admissions Committee, Carnegie Mellon University Africa

From 2018 to 2019 I took charge of the admissions process for two masters programs: a Masters in Information Technology (MSIT) and a Masters in Electrical and Computer Engineering (MSECE). This involved an in-depth exercise in business process re-engineering, as part of which I modelled the admissions processes for both degrees, revealing hidden complexity and opportunities for rationalizing each process (the state transition diagrams for the MSIT and MSECE admissions process comprise 40 and 30 discrete states, respectively). I also created a comprehensive 57-page admissions guide, setting out the complete admissions process for both programs, including a specification of the application verification procedure and detailed task descriptions for each member of an Admissions Team that was subsequently formed as a consequence of this exercise. I also took responsibility for training the members of the Admissions Team.

Publications (in reverse chronological order by category)

Most of the following publications are available online at www.vernon.eu.

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