Bart Lodewijk René De Moor

Version April 2025. Underlined words are clickable.

PERSONAL INFORMATION



- Names: De Moor, Bart, Lodewijk, René
- Date and place of birth: July 12, 1960, Halle, Belgium
- Nationality: Belgian
- Married to Hilde Devoghel, three children: Thomas (1992), Hannah (1994), Jakob (2000)
- Address: Parklaan 5, 3360 Bierbeek (Lovenjoel)
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- URL web site**:** www.bartdemoor.be
- Researcher unique identifier: **ORCID**

EDUCATION

- 1988: PhD Electrical Engineering, KU Leuven, Faculty Engineering, Belgium (promotor: Joos Vandewalle)
- 1983: Master Electrical Engineering, Control Theory, KU Leuven, Faculty of Engineering, Belgium
- 1975-1978: Sint-Jan Berchmanscollege, Brussels
- 1972-1983: Music Academy Alsemberg: Solfege, percussion, piano, composition
- 1966-1974: Sint-Victor Instituut, Alsemberg

POSITIONS

- 2000-now: Full Professor, Dept. Electrical Engineering, KU Leuven, Belgium
- 2016-now: Guest Professor, Dept. Information Engineering & Mathematics, Universita Di Siena, Italy
- 2010-2015: Scientific Director Department Medical IT, Strategic Research Center iMinds, Flanders
- 2009-2013: Vice-rector International Policy, KU Leuven
- 2007-2009: Head Socio-Economical Cabinet, Minister-President Flanders Region (Y. Leterme)
- 1994-1999: Main Science Advisor, Minister-President Flanders Region (L. Van den Brande)
- 1992: Visiting Research Associate, University of Minneapolis, USA
- 1991-1992: Head of Cabinet, Federal Minister of Science Policy (W. Demeester), Brussels
- 1990-1999: Senior Research Associate, Scientific Research Foundation (FWO), Flanders
- 1988-1990: Research Associate at Stanford University (depts. Electrical Engineering (Thomas Kailath) and Computer Science (Gene Golub))
- 1983-1988: PhD Grant IWONL (Institute for Scientific Research in Industry and Agriculture)

FELLOWSHIPS, AWARDS, HONORS

- 2022: Fellow IFAC for *"contributions to numerical multi-linear algebra, systems theory and systems identification, with applications in process control and bioinformatics"*
- 2022: Elected to the Academia Europaea (Section Mathematics – Informatics)
- 2020: Commander in the Order of King Leopold I, granted by King Filip of Belgium
- 2020: ERC Advanced Grant *'Back to the roots'*
- 2018-now: Co-holder KU Leuven Chair 'Health Care Systems Quality and Accessibility', endowed by Health Insurance Organisation CM
- 2017: Fellow SIAM for '*Contributions to numerical multilinear algebra'*
- 2010: Excellence Award of the Flanders Research Foundation, by King Albert II of Belgium
- 2003: Fellow IEEE for '*Contributions to algebraic/numerical methods for systems and control'*
- 1999: IEEE Signal Processing Society Award
- 1996: Automatica Award, International Federation of Control (IFAC)
- 1994: Bi-annual Siemens Award by the Flanders Research Foundation
- 1992: Laureate of the Royal Flemish Academy of Belgium for Sciences and Arts
- 1990: Guillemin-Cauer Award IEEE Transactions Circuits and Systems
- 1989: Leslie Fox Prize, Cambridge, UK
- 1986: Leybold-Heraeus Prize

RESEARCH ACTIVITIES

- Scientific Disciplines:
  - Numerical (multi-) linear algebra and algebraic geometry (generalized singular value decompositions, multi-dimensional SVD, generalized linear complementarity problems, quantum information theory, numerical linear algebra approach to rooting sets of polynomial equations)
  - Dynamical System Theory and Identification, data science, machine learning (subspace identification, support vector machines)
  - Advanced Control Theory (observers, computer aided control system design)
- Application Areas:
  - Industry 4.0: Subspace system identification and control of the synthesis section of a Urea plant, of the dipping section of a capsule manufacturing process, data driven identification of several Belgian river basins (flood avoidance), forecasting models for indoor CO_2 concentration, modelling (prevention of) flutter for airplane wings, model-based data assimilation for microclimate air-quality forecasting, smart grid Belgian electrical load forecasting (3000 transformers, sampled every 15 min during 5 years)
  - Medical decision support systems (DSS): Belgian health insurance prescription records analysis, automation of intensive care DSS, algorithms for automated PCR analysis, hospital prediction of duration stay software
- Publications: Books, papers, other
  - See www.bartdemoor.be
  - Search engine on https://homes.esat.kuleuven.be/~sistawww/cgi-bin/pub.pl
  - Google Scholar https://scholar.google.com/citations?hl=en&user=qws2WIMAAAAJ
- Bibliometry
  - https://scholar.google.com/citations?hl=en&user=qws2WIMAAAAJ: 86 649 citations; H-index 123
  - Web of Science: H-index 82; Total cited: 28 98
  - Ranked 15th all-time top PhD advisors in mathematics (https://genealogy.math.ndsu.nodak.edu/extrema.php)
- Mentorship:
  - 1991-now: Promotor of 93 PhD theses (see Mathematical Genealogy), all worldwide active in academia (30%), industry (60%), government agencies (10%)
  - 1991-now: Host to 46 postdoctoral researchers and visiting professors
  - 1991-now: Promotor of 200+ master theses in masters mathematical engineering, statistics, artificial intelligence, bioengineering, electrical engineering
- Coordinator of and contributor to numerous research projects, funded by regional, Belgian and European funding agencies and third parties (full list www.bartdemoor.be)
- Reviews:
  - Regular reviewer for journals of IEEE, SIAM, IFAC and their major conferences, regular proposal reviewer for Belgian and European Funding Agencies and jury member
  - Editorial Board Member of the UK Royal Society Open Science Journal (section Computer Science and AI)
- Science Outreach
  - 2019: Co-founder of Math popularizing website
  - 2016-now: patron of STEM Training Website
  - 2015-now: Founder & Chairman Board of Health House (high-tech health experience center)
  - 2015-2017: Member of the Flanders STEM Platform
  - 2009-now: Patron STEM Olympiad
  - 2009-now: Trustee of the RVO-Society
  - 2005 & 2015: Teacher KU Leuven Children's University
  - 2002-now: Regular guest appearances in science outreach programs on national radio and television
  - 1999-2015: Co-founder and member of the Board of Technopolis (Children Science Center)
  - 1992-now: Co-founder interdisciplinary philosophical think-tank Worldviews
  - 2024: Podcast 'In Control' (Subspace identification, linear and multilinear algebra, quantum information, machine learning, 2 hour)

ORGANISATION OF SCIENTIFIC MEETINGS

- 1997: Program Chairman of European Control Conference, Brussels, 750 attendees, 2004
- 2004: Chair of the Conference of Mathematical Theory of Networks and Systems, Leuven, 600 attendees

- 2019: Organizer of the Benelux Meeting on Systems and Control, Houthalen, 150 attendees,
- At numerous occasions: Member of the organizing/program committees of the Conference on System Identification (SYSID), European Control Conference (ECC), Benelux meeting on Systems and Control, European Research Network on System Identification (ERNSI), …

TECHNOLOGY TRANSFER

- My contribution to our university KU Leuven being ranked 7th in the Thomson-Reuters ranking of most innovative universities in the world (1st in Europe), has been the creation of 10 spinoff/start-up companies:
    - *www.ipcos.com* (industrial process control, management buy-out)
    - *www.tmleuven.be* (traffic modelling and consulting)
    - *Data4s* (fraud detection (mobile phones, credit cards, tax evasion), acquired by Norkom next by BAE Systems
    - *Silicos* (AI for drug discovery, activities stopped)
    - *www.trendminer.com* (data mining in the process industry, acquired by Software AG)
    - Cartagenia (genomics data analysis, acquired by Agilent)
    - *www.ugentec.com* (automated PCR analysis, acquired by Summa Equity)
    - *Lindacare* (patient tele-monitoring, activities stopped)
    - *https://www.aspect-analytics.com* (software for mass spectrometry imaging).
    - *https://www.timeseer.ai* (monitoring time series in the process industry)
- Patents: Co-holder of several patents (granted/pending) *(A method for fusing multi-modal medical images (e.g. Mass Spectrometry Imaging, Spatial Transcriptomics,…); Intensity normalization in imaging mass spectrometry; Automatic infusion system based on an adaptive patient model; Hepatocellular Carcinoma: Predicting or determining biological behavior or a stage of a hepatocellular carcinoma tumor comprises determining the level of gene expression of the liver specific 7-gene signature associated with chronic hypoxia in a test sample; High discrimination power biomarker diagnosing: Diagnosing a disorder associated with the female's menstrual cycle comprises processing of biomarker variables from in vitro assay*).
- 2015-2022: Member of the Advisory Committee of the Capricorn Health-tech Investment Fund

TEACHING ACTIVITIES

- KU Leuven: Bachelor & Master Courses: System Theory and Control, Computer Aided Control System Design, System Identification, case studies in Mathematical Engineering, Entrepreneurship
- Graduate (PhD) courses in Belgium, the Netherlands, Sweden, Italy, USA.

INSTITUTIONAL RESPONSIBILITIES

- 2025-present: Chairman of the Leuven Gravity Institute (e.g. Einstein Telescope)
- 2023-present: Member of the Board of the European Innovation Council (European Commission Decision, Dec. 2023)
- 2023-present: Member of the Governance Board of the Belgian Health Data Agency (secondary use of health data)
- 2023-present: Chairman of the Board of https://athumi.be/en/, Flanders Data Utility Company
- 2021-present: Member of the Board of 'Ignatius in Beweging' (Jesuit School Network)
- 2020-present: Chairman of the KU Leuven.AI Institute
- 2020-present: Chairman of the Board of Capricorn Digital Growth Fund (CDGF, venture capital)
- 2020-present: Chairman of the Board of FAIA (Flanders AI Academy)
- 2019-present: Member of the Board of UCSIA (Jesuit Academic Foundation)
- 2018-2022: Member ESGAB (European Statistical Governance Advisory Board, nominated by the European Council decision 18/12/2017 (2017/C 439/03))
- 2017-present: Founding Chairman of Health House (high-tech health experience center)
- 2015-present: Member Steering Group Leuven Mindgate
- 2014-present: Member of the Board of Officenter
- 2014-2021: Member Board AstraZeneca Foundation
- 2013-2022: Member Board Trustees Danish National Research Foundation
- 2009-present: Chairman Alamire Foundation (Center for the Study of Polyphonic Music)
- 2009-2014: Vice-rector International Policy KU Leuven
- 2009-2014: Founding Board member Leuven International School
- 2009-2013: Chairman Committee Internationalisation & Development Cooperation Flemish University Council
- 2009-2013: Member of the Board KU Leuven
- 2007-2015: Chairman Industrial Research Fund KU Leuven
- 2007-2011: Board member iMinds (merged since 2017 with imec)

- 2007-2015: Chairman Hercules Foundation (scientific infrastructure funding agency, merged in 2015 with FWO)
- 2000-2005: Board member Belgian Nuclear Research Center, Belgium
- 1999-2023: Secretary Board (till 2015), Member Scientific Committee of Technopolis (Flanders Children's Science Experience Center)
- 1995-now: Member Board, remuneration, investment, strategic committees: Flanders Biotech Research Institute

COMMISSION OF TRUST

- 2018-present: Scientific architect and coordinator of Flanders AI Program (32 mio €/year), involving universities, research institutes and industry
- 2017-2018: 'Sherpa' for Belgium in the European High Performance Computing Initiative
- 2016-2018: Member of the Scientific Advisory Committee of Science Europe
- 2016-present: Member Int. Scientific Advisory Board of Wallenberg Autonomous Systems Program, Knut and Alice Wallenberg Foundation
- 2016-present: Member of the Scientific Advisory Board of the Dutch Institute of Systems and Control
- Assessment Assignments:
    - 2021-present: Member of the monitoring/assessment committees of National Research Institutes in Slovakia and Serbia (assignment World Bank); Roemenia;
    - 2021-present: Member of the assessment committee of: KTH, Stockholm; Interdisciplinary Centre for Security, Reliability and Trust (University of Luxembourg); Linkoping University (Sweden);
    - 2020-2021: Chairman of the assessment committee of the Electrical Engineering Institute Nicola Tesla
    - 2015-2019: Chairman University Research Policy ('University Profiling') Assessment Committee, Finish Academy of Sciences
    - 2016-2019: Member committee of the Villum Young Investigator Grants of the Velux Foundation, Denmark
    - 2015-present: Member of committees in the Swedish, Finish, Norwegian, Irish and Luxembourg Science/Research Councils/Academies
    - 2013-2020: Member Panel Starters Grant Computer Sciences European Research Council
    - 2013-2014: Member National Tenure Track Commission for Control and Automation in Italy
    - 2010-2012: Chairman of the Education Assessment Panel (for NVAO) as well as the Research Assessment Panel of Electrical Engineering University Departments in The Netherlands
    - 2006-2008: Selection Committees member for Linnaeus Centers of Excellence (Sweden) and UNIK (Denmark)

MEMBERSHIPS OF SOCIETIES

- Elected Member of the Academia Europeae
- Fellow of the Institute for Electrical and Electronic Engineers
- Fellow of the Society for Industrial and Applied Mathematics
- Member of the American Mathematical Society
- Fellow of the International Federation of Automatic Control
- Elected member Royal Academy of Belgium for Sciences and Arts
- Member of VIRA (Organisation of Belgian diplomates and international representatives)
- Member of ie-net (Flanders Engineering Association)
- Member of 'Academische Stichting Leuven'