

Biography of Professor Abderrahim Jourani

Professor **Abderrahim Jourani** is a Moroccan-born French mathematician specializing in **nonsmooth analysis, optimization, variational analysis, and optimal control**. He was born in Morocco in **1961** and has pursued the greater part of his academic career in France, where he is currently a Full Professor at **Université Bourgogne Europe in Dijon** and a member of the **Institut de Mathématiques de Bourgogne (IMB), UMR 5584 CNRS**.

Education

Professor Jourani obtained his **M.Sc. in Applied Mathematics in June 1985** from the **University of Pau, France**. He subsequently completed his **Ph.D. in Applied Mathematics in June 1989**, also at the University of Pau. His doctoral work was devoted to problems in **nonsmooth analysis and optimization**, particularly **metric regularity** and its applications to nondifferentiable optimization, sensitivity analysis, and subdifferential calculus.

In **July 1994**, he obtained his **Habilitation à Diriger des Recherches (HDR)** from the **University of Burgundy in Dijon**, an important French qualification recognizing the capacity to conduct independent research and supervise doctoral researchers.

Academic career

Jourani has been affiliated with the mathematics research community in Dijon since **1990**; his ORCID record records his employment at what is now Université Bourgogne Europe from October 1990 onward. He subsequently became a Full Professor in applied mathematics and established himself as a researcher in nonsmooth analysis and optimization.

At the University of Burgundy, he also assumed a number of administrative and academic responsibilities. He served as **Director of the Department of Mathematics from 2007 to 2013**, and subsequently as **Deputy Director of the Institut de Mathématiques de Bourgogne in 2014–2015**. From **January 2016 through January 2024**, he served as **Director of the Institut de Mathématiques de Bourgogne (IMB)**, the mathematics research institute jointly associated with the university and the CNRS.

The IMB is a major research laboratory comprising researchers working across several areas of mathematics. Today, Jourani is a member of its **Statistique, Probabilités, Optimisation et Contrôle (SPOC)** team and is listed as one of the team's scientific leaders.

Research

Professor Jourani's research career has focused principally on **nonsmooth analysis and optimization**, an area concerned with mathematical problems in which the functions or sets under consideration may fail to possess classical derivatives or smooth boundaries.

His principal research interests include:

- metric regularity and error bounds;
- subdifferential and coderivative calculus;

- nonsmooth and nondifferentiable optimization;
- parametric optimization, stability, and sensitivity analysis;
- multiobjective optimization;
- dynamic optimization and optimal control;
- calculus of variations;
- differential inclusions;
- sweeping processes;
- geometrical and topological aspects of nonsmooth analysis;
- mathematical economics;
- location theory; and
- applications of variational analysis to control and optimization.

A particularly important thread throughout his work is the development of mathematical tools for understanding **optimization problems without smoothness assumptions**. His research on metric regularity, subdifferentials, error bounds, generalized differentiability, and variational systems has applications to optimization, control theory, and related areas of applied mathematics.

In the later part of his career, Jourani has made substantial contributions to the mathematical theory of **sweeping processes**, differential inclusions, and optimal control. His recent publications continue this line of research, including work on controlled and implicit sweeping processes and their applications to optimal control.

International research activity

Although based in Dijon for most of his professional career, Jourani has maintained an extensive international research network. According to his ORCID biography, he has carried out research stays and collaborations at institutions including the **University of Alicante**, **Cadi Ayyad University in Marrakech**, the **University of Chile**, the **International University of Ho Chi Minh City**, the **Vietnam Institute for Advanced Study in Mathematics**, and the **Weierstrass Institute for Applied Analysis and Stochastics (WIAS) in Berlin**.

He has also participated in numerous collaborative research projects supported by national and international funding programmes, including **Math-AmSud**, **ECOS-CONYCIT**, and programmes of the **Bourgogne-Franche-Comté region**.

Scientific leadership and service

Beyond his research publications, Jourani has played an important role in the organization of mathematical research in Burgundy. As director of the IMB from 2016 to 2024, he contributed to the management and development of one of the principal mathematics research laboratories in the region. The IMB is a CNRS research unit (UMR 5584) associated with Université

Bourgogne Europe and brings together research groups in geometry, algebra, dynamics, topology, mathematical physics, statistics, probability, optimization, and control.

He has also served on university councils and committees, participated in scientific and strategic bodies, led the Applied Analysis and Optimization research team at the IMB from 2005 to 2014, and contributed to national and international scientific evaluation activities.

Scholarly contribution

*Jourani's publication record extends from **1990 to the present**, covering several decades of research in modern applied mathematics. His work has appeared in major international journals in optimization, functional analysis, variational analysis, control, and mathematical programming. His collaborations include researchers such as **Lionel Thibault, Dariusz Zagrodny, R. Henrion, Jane Ye, L. Vilches, A. Cabot, A. Hantoute**, and many others.*

*His research can broadly be viewed as contributing to the development of the mathematical foundations needed to treat **optimization and control problems involving nonsmooth, set-valued, nonconvex, or otherwise irregular structures**.*

As of 2026, Professor Jourani remains a Full Professor at Université Bourgogne Europe and continues his research within the Institut de Mathématiques de Bourgogne, where he is also involved in the SPOC research team.