BUILDING PARALLEL, EMBEDDED, AND REAL-TIME APPLICATIONS WITH ADA

JOHN W. MCCORMICK
University of Northern Iowa

FRANK SINGHOFF
Université de Bretagne Occidentale

JÉRÔME HUGUES
*Institute for Space and Aeronautics
Engineering (ISAE), Toulouse*

CAMBRIDGE
UNIVERSITY PRESS

The photograph on the cover shows astronaut Stephen K. Robinson standing on the end of the International Space Station's robotic manipulator system, Canadarm 2. This arm, built by MacDonald, Dettwiler, and Associates Ltd for the Canadian Space Agency, is 17.6 m long when fully extended. It has seven motorized joints, each a complex embedded real-time system. Given its crucial role on the space station, the reliability of Canadarm 2 must be impeccable. The software for these joints and for the workstation that the astronauts use to control them is written in Ada. This book provides an introduction to the concepts of concurrent programming, embedded systems, and real-time constraints necessary for understanding and developing the software for such systems.