



WORLD AUTOMATION CONGRESS

WAC 2024

16th Bi-annual Congress

Playa Paraiso Riviera Maya, Mexico



Professor Duc Pham, Fellow UK Academy of Engineering,

Order of British Empire

University of Birmingham, UK

Honoree Keynote No. xxx
Date: September, xx, 2024
Time: xx-xx

Chair: TBN

***“Steps Towards Smart Remanufacturing – Results of
the Autoreman Project “***

ABSTRACT

This presentation describes research into robotised disassembly by the Autonomous Remanufacturing Laboratory at the University of Birmingham, England, as part of the Autoreman research programme funded by the UK Engineering and Physical Science Research Council. In ANSI RIC001.1-2016 (Specifications For The Process Of Remanufacturing), the American National Standards Institute defines remanufacturing as *“a comprehensive and rigorous industrial process by which a previously sold, leased, used, worn, or non-functional product or part is returned to ‘like-new’ or ‘better-than-new’ condition, from both a quality and performance perspective, through a controlled, reproducible, and sustainable process.”* Remanufacturing is integral to a circular economy, saving raw materials and other resources, including energy and water, and drastically cutting greenhouse gas emissions and the need for landfill. The first task in almost all remanufacturing operations is the disassembly of the ‘core’ or the product to be remanufactured. Due to the condition of the used product, disassembly can be a difficult task that has so far been almost exclusively undertaken by human operators. The presentation will cover the five areas of work in Autoreman: disassembly science, disassembly strategies, disassembly planning, collaborative disassembly and disassembly case studies. The presentation will conclude that a flying start has been made on research into robotised disassembly and that (early) dawn has broken on the era of Smart Remanufacturing.

Bio: Duc Truong Pham OBE, FREng, FLSW, FSME, BE, PhD, DEng, CEng, FIET, FIMechE, SFHEA , Chance Professor of Engineering, University of Birmingham, England

Duc Truong Pham’s research covers the fields of mechanical, manufacturing, computer, and systems engineering.

His academic output includes more than 600 technical papers and 17 books. He has supervised over 100 PhD theses to completion. He has won more than £30M in external research grants and contracts.

In addition to pursuing and leading research, he has acted as a consultant to several major companies and has been active with knowledge transfer to industry, applying the results of his work to help multinational companies and SMEs generate wealth and create and safeguard jobs.

He has lectured extensively abroad on his research and has delivered more than fifty keynote presentations at international conferences. He was Professeur Invité at École Centrale de Paris, Consulting Professor at HUST (China), Erskine Visiting Fellow at the University of Canterbury (New Zealand), Visiting Professor at the Université Paul Verlaine (France), Visiting Professor at King Saud University (Saudi Arabia), Strategic Scientist at Wuhan University of Technology and Honorary Professor at Xi'an Jiaotong University (China).

He is the founding editor of the Springer Series in Advanced Manufacturing, the founding editor-in-chief of Cogent Engineering and the editor-in-chief of the International Journal on Interactive Design and Manufacturing.

He has received several prizes including the Sir Joseph Whitworth prize from the Institution of Mechanical Engineers in 1996 and 2000 and the Institution's Thomas Stephens Group Prize in 2001 and 2003 and Donald Julius Groen Prize in 2004, and the 5th ICMR Best Paper Prize in 2007. He is also a recipient of a Lifetime Achievement Award (2016, World Automation Congress) and a Distinguished International Academic Contribution Award (IEEE SMC Society TC on Enterprise Info Sys and IFIP TC8 WG8.9, 2017)

He is a Fellow of the Royal Academy of Engineering, Learned Society of Wales, Society of Manufacturing Engineers, Institution of Engineering and Technology, and Institution of Mechanical Engineers. He was made an OBE in the 2003 New Year's Honours List for his services to Engineering.