



INAUGURAL LECTURE

Professor David Bue Pedersen

Machine Design and Advanced Manufacturing Systems

Friday April 4th, 2025

3 pm - 4 pm

DTU Lyngby

Building 101

Glass Hall



Professor David Bue Pedersen is an expert in Additive Manufacturing and a professor of Machine Design and Advanced Manufacturing Systems. His research addresses the critical challenges facing the Danish manufacturing landscape as digital transformation, sustainability, resilience demands, and accelerated development reshape traditional practices.

Drawing on a holistic and applied approach honed over his career, he works to integrate advanced digital technology, innovative process methods, and data-driven techniques into manufacturing operations. His work bridges conventional mechanical engineering with emerging technological paradigms, aiming to enhance Denmark as a manufacturing nation.

David has founded and operates one of the most innovative joint research and teaching laboratories in Northern Europe, where he and his group at the Technical University of Denmark are dedicated to advancing both research and education.

By fostering collaborative industry initiatives and creating integrated research-teaching environments, he mentors the next generation of engineers, equipping them to navigate complex real-world challenges and drive sustainable progress in modern manufacturing.

Abstract

Denmark is celebrated for its high-quality manufacturing and contemporary, user-centered design, from iconic playware and life-changing pharmaceuticals and medical devices to renewable energy solutions. Yet, as digital transformation, sustainability demands, and accelerated development cycles reshape our industry, we now face a critical juncture where

our celebrated traditional practices fall short. My approach to Machine Design and Advanced Manufacturing Systems is rooted in a holistic, applied systems engineering method tailored to the Danish context, treating manufacturing process chains as systems of systems. This integrated foundation enables a much more effortless adoption of new technologies, processes, and data-driven methods, ensuring our industry remains innovative, adaptive, and competitive.

While Denmark leads in areas like collaborative robotics, automation, and additive manufacturing, spurred by world-class clusters and dynamic research-industry partnerships, many enterprises still struggle to embrace emerging technologies. Factors such as a reluctance to adopt transformative change, skills shortages, and entrenched legacy processes and workflows persist. Despite strong problem-based learning and industry collaborations in our universities, dedicated systems engineering programs are notably absent, leaving a crucial gap in education.

In this lecture, I will outline how integrating advanced research into both academia and industry can equip the next generation of Danish engineers with the skills needed to navigate complex, interconnected production systems. By adopting this dynamic approach, we can build on our tradition of meticulous craftsmanship and design excellence, ensuring that Denmark remains a global leader in forward-thinking manufacturing for the future

CV

Education

- PhD in Mechanical Engineering Technical University of Denmark (DTU) 2010 – 2013
- MSc in Mechanical Engineering Technical University of Denmark (DTU) 2003 – 2009

Executive Training

- PastEUR Programme – Project to Competitive Advantage, Harvard Business School(2018)

Research & Citation Metrics

- Total Publications: 202
- Google Scholar H-idx: 30 | Scopus H-idx: 24 | Web of Science H-idx: 24 | PlumX H-idx: 24

Selected Grants & Awards

- Total Direct Funding to DTU (via major framework programs): 80+ million DKK
- Recipient, Editors Choice (2024) for research on laser powder bed fusion
- Winner, Bright Idea Award (2019) by The Otto Moensted Foundation
- Best Paper Awards, International Conferences on Additive Manufacturing (2016, 2020)

You can register for the Inaugural Lecture by clicking the link in the email.

