



## The Worshipful Company of Engineers

(Incorporated by Royal Charter 2004)

### The Immediate Past Master 2023 - 2024



**Mrs Audrey Canning**

MA CEng FIET FRSA MSaRS MIOD

Audrey has more than forty years of experience in the engineering industry, particularly in the application of advanced software control systems, safety critical computer systems, manufacturing technologies and assurance of major infrastructure projects.

Following graduation from Churchill College, Cambridge in 1978, she worked as a design engineer developing electronic hardware, firmware and software control and signal processing systems, firstly for Marconi Space and Defence Systems, then for an SME and in 1991 she became a Department Manager at ERA Technology Ltd. During her time at ERA she was responsible for development of avionics software standards, communication protocols, mine detection radar signal processing algorithms and research into AI. In 1986 she established ERA's work in safety critical computer systems (which came to be one of the most highly regarded centres in this field) where she also set up the first NAMAS accredited safety critical software test house. During her work at ERA she led more than twenty independent safety assessments in applications as diverse as oil and gas, military, medical devices, nuclear, air traffic control and railway protection systems. She also set up and led two multi-million pound collaborative research projects on safety critical systems, one for industrial data driven systems and the other in machine learning.

In 1997, as Managing Director, she set up Virkonnen Ltd. specialising in safety critical computer applications and consultancy, but also undertaking monitoring and assessment activities for government funded research. Over the last 20 years she has taken responsibility, as Engineering Safety Manager, for the Piccadilly Line Extension to Heathrow Terminal 5 (2004-2007), the Engineering Assurance and Compliance Manager for the Northern Line Signalling upgrade (2010-2014) and the Systems and Safety Engineering

Manager for the feasibility and concept design stages of the Northern Line Extension to Battersea Power Station (2015-2017). She has led multi-disciplinary safety teams integrating skills as diverse as civil, mechanical, electrical, fire, EMC and human factors engineering, as well as signalling, track, communications and computer based technology.

Her professional activities have included past membership of the IET Council, chair of the (IEE) software engineering professional group, member of the Control and Automation Board and founder and past chair of the IET Safety Community. She has served on EPSRC advisory and NATO standardisation boards. She is currently co-chairman of the international standard IEC61508 (Functional Safety of Electrical, Electronic and Programmable Electronic Systems) and she is the international lead on functional safety on the Advisory Committee on Safety (ACOS) to the IEC Standards Management Board. In 2020 she was appointed as the IEC representative on the Joint ISO/IEC Working Group developing standards in Artificial Intelligence, where she has been responsible for leading the work to develop a Technical Report on Functional Safety and Artificial Intelligence.

In 2016 she was awarded the IEC 1906 medal recognising exceptional current achievements. She has published more than 20 papers, covering safety critical systems, knowledge based systems and collaborative R&D, her most recent papers being 'Functional Safety, where have we come from, where are we going?' (SCSC, Feb. 17), 'Developing Safe and Secure Standards' (IET, Nov. 2017) and the about to be published presentation, 'Safety through Systems using Artificial Intelligence', Vision Zero Summit (joint with the International Labour Organisation), Japan 2022 11-13<sup>th</sup> May 2022.

Her hobbies include dressmaking, walking and travel. She has two grown up children, one a professional electronic systems engineer-turned-teacher and the other an astrophysicist researching galaxy formation.

Audrey has been a member of the Livery of the Worshipful Company of Engineers since 2000 and was elected to the Court of Assistants in 2013, Junior Warden in 2019, Middle Warden in 2020, Senior Warden in 2021, Master in 2022 and appointed Immediate Past Master on 25 April 2023.