Abstract: We are entering an age whereby the combination of human and machine intelligences is driving us to think beyond the classical paradigm of human-machine interaction design and into one of engineering a teaming or fusion between these capabilities. Human performance engineering is the collection of scientific and design methods that apply deep expertise in how humans think, learn, and behave to the goal of optimizing system performance and readiness. The insertion of advanced AI capabilities in those systems is a game changer. It introduces a system element that adapts and changes continuously as a result of reasoning about the observations it collects about the work environment and human behavior. Ensuring that these hybrid systems behave within the performance envelop they have been designed for is a key challenge for the system designer.

Through examples from the real world and ongoing research projects, we will highlight some key trends in human performance engineering and illustrate how the future of work, in domains ranging from training and education to manufacturing, defense, aviation, and medicine, will be highly dependent on our ability to thoughtfully engineer these new human-AI “multi-species” systems.

Bio: As Aptima’s Founder and CEO, Daniel Serfaty has led Aptima to become the premier Human Performance Engineering business in the world. His work optimizes the integration of humans with intelligent technologies in defense, healthcare, aerospace, and education. His keynote addresses around the world encourage his audiences to imagine a future in which human and artificial intelligences work together in the service of humankind. He is the host of the MINDWORKSTM podcast, where he engages with thought leaders to explore how machine learning, data science, and technology are transforming the ways humans think, learn, and work in the age of AI.

Daniel’s interdisciplinary background includes degrees in mathematics, psychology, aerospace engineering, and international business from the Université de Paris, the Technion, Israel Institute of Technology, and University of Connecticut. His doctoral work has pioneered the study of distributed command teams. He is the recipient of the UConn Distinguished Service Award and has been inducted into its Engineering Hall of Fame.