האיגוד הישראלי להנדסת מערכות (IL-INCOSE) מזמין נציגים ועמיתים מארגוניכם להשתתף בכנס השנתי – **הנדסת מערכות בעידן ה-AI שייערך 3.6.2024- במלון דניאל בהרצליה.**

ביום שלישי ה4.6.2024- נקיים יום של סדנאות באופן מקוון בהשתתפות מרצים מהארץ ומחו"ל.

הכנס השנה הינו הזדמנות לשתף אוכלוסיות רחבות מהתעשייה והאקדמיה בנושאי הנדסת מערכות וליצור בעקבותיו היכרויות בין העוסקים בהנדסת מערכות, להרחיב את השת"פ תעשייה – אקדמיה, להתעדכן בכלים ושיטות ולהרחיב ולהעמיק את העשייה בגישה של הנדסת מערכות.

הכנס השנה ישלב בין תיאוריה למעשה במגוון נושאים וישלב היטב בין 'התעשיות הביטחוניות' לבין 'התעשיות האזרחיות' ולבין תעשיית 'ההייטק הזריזה' – יש מה ללמוד האחד מהשני ולהעשיר האחד את השני.

למעבר לאתר הכנס, לחצו כאן.

תוכנית יום הסדנאות - 04.06.2024

יום הסדנאות יתקיים בזום

Time Line	Topic	Speaker
08:00-08:15	Attendees logging-in, audio-visual checks	
08:15-08:30	Opening and agenda introduction	Dr. Yaniv Mordecai, Tel-Aviv University
08:30-10:00	AI-Driven System Design for Advanced Radar Technology	Dr. Nir Regev, CalPoly Pomona
10:00-10:15	Break	
10:15-11:45	Integrating Generative AI with Traditional Data Science - A Systems Approach	Dr. Yaniv Mordecai, Tel-Aviv University
11:45-13:00	Lunch Break	
13:00-14:30	Systems and AI Integration for large Enterprises	Dr. Jyo Gadewadikar, The MITRE Corporation
14:30-15:00	Break	
15:00-16:30	Role of AI-ML in Systems Engineering to Support Human Decision Making	Dr. Paul Hershey, Raytheon
16:30-16:45	Break	
16:45-17:15	Wrap - Up and Conclusive Discussion on Key Takeaways	Dr. Yaniv Mordecai, Tel-Aviv University

Tutorial Abstracts

Integrating Generative AI with Traditional Data Science - A Systems Approach	**Dr. Yaniv Mordecai, Tel-Aviv University**
This tutorial will explain what Large Language Models are and how they can be used in complex systems, mainly in conjunction with traditional data analysis methods. We take a systems approach and conceive the AI module as a component in a bigger system that intends to support its operators in achieving various effects and goals. Participants will get a better understanding of LLMs, how to integrate LLMs into comprehensive solutions, and what are the use cases for LLM as part of bigger systems.	
Dr. Yaniv Mordecai is a senior teaching fellow at Tel-Aviv University, Tel-Aviv, Israel, a Senior Research Scientist at Amazon, Bellevue, Washington, USA, and a former Technion-MIT Post-Doctoral Fellow at MIT's Engineering Systems Laboratory (2019-21). He holds a Teaching Certificate from MIT (2020), a Ph.D. in information systems engineering from Technion – Israel Institute of Technology, Israel (2016), and M.Sc. (2010, cum laude) and B.Sc. (2002) in industrial engineering & management from Tel-Aviv University, Israel. His research interests include model-based systems engineering, model analytics, cybernetics, interoperable systems, decision automation, operations research, and applications of artificial intelligence for geospatial optimization. Dr. Mordecai is a senior member of IEEE, member of INCOSE and INFORMS, and Board Member of the Israeli Society for Systems Engineering – INCOSE_IL. He won multiple international research awards and is a recognized international expert in modeling and simulation of complex systems.	

AI-Driven System Design for Advanced Radar Technology	**Dr. Nir Regev, CalPoly Pomona**
Radar system design plays a crucial role in determining the performance and effectiveness of radar technology across various applications. With the emergence of artificial intelligence (AI), there is a growing opportunity to revolutionize radar system design by integrating AI techniques into the design process. This tutorial presentation explores the transformative potential of AI in radar system design, focusing on the benefits, challenges, and practical applications of AI-driven design approaches.	
"Dr. Nir Regev is an expert in AI and radar signal processing, specializing in FMCW and Pulse Doppler radars. His work focuses on the development of algorithms for target detection and tracking in MATLAB, Python, and C++. Dr. Regev has a deep background in statistical signal processing and applies his expertise to both radar and computer vision technologies and their intersection with AI. He is proficient in various AI domains including generative AI and deep learning for semantic segmentation. Dr. Regev is the founder of AlephZero.ai and serves as an Adjunct Professor in Electrical and Computer Engineering at Cal Poly Pomona. With a strong record in both academia and industry, Dr. Regev leads projects that bridge theoretical research and practical application, enhancing real-time technology solutions. Dr. Regev holds a Ph.D., MS and BS in Electrical Engineering from the Ben-Gurion University of the Negev, Israel"	

Systems and AI Integration for large Enterprises	**Dr. Jyo Gadewadikar, The MITRE Corporation**
This Tutorial will help Systems Engineers to accelerate the adoption, integration, and scaling of trusted artificial intelligence & machine learning initiatives in government agencies and large enterprises. With AI powered systems enabled by systems engineering, large Enterprises can reduce costs, improve effectiveness, and achieve better business outcomes. This tutorial will help learn how to use Systems perspectives to expand AI above and beyond individual use cases. Key takeaways: A) How to identify AI needs and capabilities and generate synergetic themes from these needs and capabilities. B) How to accelerate AI initiatives at the Enterprise Level using the awareness of System dependence and capability sequencing.	
Dr. Jyotirmay (Jyo) Gadewadikar is the Chief Scientist for AI Integration and Systems Engineering at the MITRE Corporation, a not-for-profit corporation committed to the public interest, operating federally funded R&D centers on behalf of U.S. government sponsors. Dr. Gadewadikar is overseeing the Systems Engineering Innovation Center's Artificial Intelligence capabilities, amplifying the integration of AI-enabled technologies into Systems of Systems, and integrating Machine Learning algorithms into systems to improve performance and achieve significant gains in system utility. He previously led conversational AI and data science initiatives at Deloitte and Accenture. He holds a Ph.D. in Autonomous Vehicles from the University of Texas in Austin (2007) and a M.S. in System Design and Management from Massachusetts Institute of Technology (2014). He is a certified Project Management Professional (PMP).	

Role of AI-ML in Systems Engineering to Support Human Decision Making	**Dr. Paul Hershey, Raytheon**
Complex commercial and military systems with emerging behaviors require decision support well beyond the capacity of human reasoning alone. To fill this gap, Artificial Intelligence and Machine Learning (AI/ML) can assist Systems Engineering (SE) with respect to operationally realizing the full potential (e.g., speed, scale, and accuracy) of the capabilities offered by these systems. This presentation provides a review of the concepts of complex systems and emergent behavior, discusses the fundamentals of AI/ML, and then ties these together to demonstrate the role of AI/ML in systems through specific commercial and military use cases. These use cases include: 1) Object Recognition and Detection Enhancement via Reinforcement Learning Yield, 2) Disaggregated Distributed AI Chat Enabler, and 3) Distributed Disaggregated Communications via Reinforcement Learning and Backpressure.	
Paul C. Hershey is presently in his 20th year with RTX, Dulles, Virginia, where he is a Principal Engineering Fellow focusing on data analytics, AI/ML, and modeling and simulation. He has published 41 patents (granted), along with 9 patents pending with the US Patent Office, and over 75 peer-reviewed technical publications. Previously, he was an adjunct professor at George Washington University where he also served on the Curriculum Advisory Board. He is an IEEE Fellow and serves on technical program committees for the IEEE International Systems Conference (also on the conference steering committee) and the IEEE International System of Systems Engineering Conference (also an industrial liaison). He is a Distinguished Lecturer on data analytics for the IEEE Systems Council. Dr. Hershey received the A.B. degree in mathematics from the College of William and Mary, Williamsburg, VA, USA, and the Ph.D. and M.S. degrees in electrical engineering from the University of Maryland, College Park, MD, USA. His Ph.D. research, sponsored by IBM, created a novel information collection, analysis, and decision system that resulted in direct customer sales	