

2022 SISE VIRTUAL CONFERENCE PROGRAM (AS OF OCTOBER 5, 2022)

THURSDAY OCTOBER 6, 2022

KEYNOTE SPEECH → 9:15 – 10:00

“ENGINEERING PRINCIPLES AND VALUES – A PERSPECTIVE”

COL Dr. Paul F. Evangelista
Chief Data Officer
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COL Paul F. Evangelista was commissioned as an Engineer officer from the United States Military Academy in 1996. Upon completion of the Engineer Officer Basic Course, COL Evangelista served as a platoon leader, company executive officer, and battalion maintenance officer with the 65th Engineer Battalion, 25th Infantry Division (Light), Schofield Barracks, Hawaii. In 2000 COL Evangelista completed the Engineer Captains Career Course and was assigned as the S4 for the 41st Engineer Battalion, 10th Mountain Division (Light), Fort Drum, NY. While at Fort Drum, he assumed command of the 642nd Engineer Company (Combat Support Equipment) and deployed with the company to Iraq in 2003. Upon returning from Iraq, COL Evangelista started graduate school at Rensselaer Polytechnic Institute where he earned an M.S. in Operations Research and Statistics and a Ph.D. in Decision Sciences and Engineering Systems. From 2005 to 2008, COL Evangelista served as an Assistant Professor in the Department of Systems Engineering and career field designated as an operations research / systems analyst (ORSA). As an ORSA, COL Evangelista was assigned to the Training and Doctrine Command Analysis Center in Monterey (TRAC - Monterey), located at the Naval Postgraduate School, where he served from 2008-2012. From January 2011 – July 2011 COL Evangelista deployed as an analyst at ISAF headquarters, Kabul, Afghanistan. In June of 2012, COL Evangelista was assigned as an Academy Professor in the Department of Systems Engineering at USMA. From June of 2013 to December of 2013, COL Evangelista deployed to serve as the Chief ORSA for the theater counter-IED task force, Combined Joint Task Force Paladin, Bagram, Afghanistan. During his current assignment at USMA, COL Evangelista has served as an Academy Professor in the Department of Systems Engineering and currently serves as the USMA Chief Data Officer. COL Evangelista is a distinguished graduate of the US Army War College and a licensed professional engineer in the state of New York.

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CV: http://paul-evangelista.com/documents/CV_Evangelista_current.pdf

BREAKOUT SESSIONS ON THURSDAY OCTOBER 6, 2022

| Time | Room | Presentation Title | Presenters |
|---------------|--------------|---|--|
| 10:10 - 10:30 | A | Implementing the use of DMAIC and Six Sigma Techniques for a Multi-Machine Output Process for Robotically Polished Blades with an Airfoil Midspan | <i>E. Saucier and D.L. Santos</i> |
| | B | Identifying Potential Supply Chain Bottlenecks Within the Ammunition Manufacturing Process for the Optionally Manned Fighting Vehicle | <i>D. Lee and V. Mittal</i> |
| 10:30 - 10:50 | A | Revamping Engineering Ethics Education | <i>K. McDonald</i> |
| | B | Approach for the Evaluation of Preventive Quality Activities Based on the Combined Reduction of Potential Failure Costs and CO2-Emissions | <i>R. C. Garcia, I. Borchardt, O. Mannuß, and J. Lips</i> |
| 10:50 - 11:10 | A | Technical Risk Management for the Smart Factory | <i>O. Mannuß and M. Kröll</i> |
| | B | Visualization of Cause-Effect Relationships in Complex Process Chains Using the Example of Battery Cell Production | <i>A. Aichele</i> |
| 11:10 - 11:30 | A | Shaping the Future of Quality Management – on the way to Quality 4.n | <i>O. Mannuss and M. Kröll</i> |
| | B | Reliability Analysis, Prognostic Approach, and their Impact on the Electronic Manufacturing Industry | <i>A. R. Mate and Z. Wang</i> |
| 11:30 - 12:30 | BREAK | | |
| 12:30- 12:50 | A | Application of Expert Systems to Military Leadership Training | <i>M. Parrish and S. Corns</i> |
| | B | An Investigation of the Gastroenterology-Urology Injection Needle Used During Endoscopies as well as the Device's Ergonomics and Desired Features | <i>C. A. Udemba and J.P. Purswell</i> |
| 12:50 - 1:10 | A | Python for Industrial and Systems Engineering | <i>P. Evangelista</i> |
| | B | Critical Analysis of Fall Risk Factors and Socioeconomic Status (SES) Among Elderly People in Community Settings | <i>S. D. Choi and E. L. Andrade</i> |
| 1:10 - 1:30 | A | A System Dynamics Model of Water Security in the Gaza Strip | <i>T. Skidmore and J. Schreiner</i> |
| | B | Review of Comparisons of Prevention through Design (PtD) Approaches Between UK vs US Construction Sectors | <i>S. D. Choi and J. G. Borchardt</i> |
| 1:30 - 1:50 | A | Supply Chain Network Design using Game-Theory | <i>V. Maru, K. Krishnan, S. Nannapaneni, and A. Arishi</i> |
| | B | Evolution of Automated & Autonomous Machines & Equipment in Construction: An Overview | <i>S. D. Choi and J. G. Borchardt</i> |
| 1:50 - 2:00 | BREAK | | |
| 2:00 - 2:20 | A | Factors Affecting Oil Spill Quantity Released in Arctic Conditions: Alaska, U.S.A. | <i>K. Hotchkiss, S. Varol, and S. D. Kim</i> |
| | B | Development of an Evaluation Procedure for the Systematic Prioritization of Risk Oriented Process Management | <i>N. Edel and M. Estler</i> |

| Time | Room | Presentation Title | Presenters |
|-------------|-------------|--|---|
| 2:20 - 2:40 | A | Ringdown Time Characterization in a 911 Public Safety Emergency Response System using Stochastic Simulation | <i>J. Holguin-de la Cruz</i> |
| | B | Decarbonizing Existing Natural Gas Systems via Hydrogen Blending: Future Direction and Opportunities for Optimization | <i>G. T. Aguinaldo and N. N. Nagarur</i> |
| 2:40 - 3:00 | A | The Impact of a Quality System Based on the ISO 9001: 2015 Standard in a Higher Education School in Mexico | <i>J. M. Hernández Ramos, C. Solís Peña, V. Lara Jiménez, J. Cuellar Celestino, and I. G. González Palomo</i> |
| | B | Significance of Learning Curves in Manual-Labor Intensive Industries | <i>A. Patil, Z. Wang, and D. Won</i> |
| 3:00 - 3:20 | A | A Systems Dynamics Modeling of Mitigation Responses for Pandemic Disruptions to Develop a Resilient Health Care Supply Chain Network | <i>A. Jackson and N. Nagarur</i> |
| | B | Predicting Heart Disease and Reducing Survey Time Using Machine Learning Algorithms | <i>S. Rababa, A. Yamin, S. Lu, and A. Obaidat</i> |
| 3:20 - 3:40 | A | Creating Cyber-Twin Across Multiple Scales of the Manufacturing Systems for Productivity Improvement: A Study Case for the Electronic Packaging Industry | <i>R. R Anap, Z. Wang, and D. Won</i> |
| | B | Design of Multipurpose Sustainable Network Model for Reverse Logistics: A Multi-Objective Optimization Approach | <i>M. Almuwallad</i> |

BREAKOUT SESSIONS ON FRIDAY OCTOBER 7, 2022

| Time | Room | Presentation Title | Presenters |
|---------------|--------------|--|---|
| 9:00 - 9:20 | A | Improving Workplace Layout and Work Environment at a Suit Factory | <i>Y. Shirai and H. Ono</i> |
| | B | Unravelling Occupational Risk Factors of Malaysia's Gig Riders: Theoretical and Methodological Considerations | <i>S. A. Rahman, J. M. Rohani, R. M. Sirat, M. F. M. Taib, and R. Mohsin</i> |
| 9:20 - 9:40 | A | Overview and Analysis of S&H System According to the Life Cycle of A Construction Project in South Korea | <i>S. H. Shin and J. H. Won</i> |
| | B | Validity and Reliability of Survey Instrument in Measuring the Occupational, Safety and Health (OSH) Culture Maturity Model | <i>N. L. N. Mohamad Naser and J. M. Rohani</i> |
| 9:40 - 10:00 | A | Lessons from Implementation of Business Continuity Plan in Singapore Construction Companies during COVID-19 | <i>P. Y. Y. Chan, S. Safiena, and Y. M. Goh</i> |
| | B | An Investigation of Search Algorithms for Aerial Reconnaissance of an Area Target | <i>R. Blankenship, J. Bluman, and J. Steckenrider</i> |
| 10:00 - 10:20 | A | Developing Requirements to Validate Autonomous Ground Vehicle Simulations | <i>J. Cox, S. DeRosier, A. Howell, J. Jones, and B. Thompson</i> |
| | B | Dye and Pry Method for Big-Size BGA Components | <i>H. M. Gharia</i> |
| 10:20 - 10:40 | A | How to Measure the Effects of Open-Plan Intelligibility on Omni-Channel Writing Activities? | <i>M. P. Serrano-Ruiz, J. A. Yarza-Acuña, and G. Ibarra-Mejía</i> |
| | B | Solder Joints Reliability for Electronics Components in Thermal Cycling Tests | <i>M. Obeid</i> |
| 10:40 - 10:50 | BREAK | | |
| 10:50 - 11:10 | A | Automation of Quotation Generation in Manufacturing Industries | <i>S. S. R. Kolli</i> |
| | B | Optimization of Electromechanical Assembly Line by Using Six Sigma and Lean Process Improvement Methodologies | <i>S. Bhojak, R. Agurla, Z. Wang, D. Won, C. Cheng, J. Deng, D. L. Santos, M. Khasawneh, and K. Srihari</i> |
| 11:10 - 11:30 | A | A Framework of Autonomous System Prognostics and Production Planning for the Electronic Packaging Industry Under Uncertainties of Supply Chain Shortages and System Breakdowns | <i>Z. Wang</i> |
| | B | Key Musculoskeletal Risk Factors Among Construction Workers in Wisconsin: A Pilot Study | <i>O. Arias, G. Koenig, and S. D. Choi</i> |