



Intermountain Engineering, Technology, & Computing Conference

BYU

BRIGHAM YOUNG
UNIVERSITY

Held at Brigham Young University, Provo, Utah, May 8th & 9th, 2026
<https://i-etc.org>

Held at Brigham Young University, May 8th-9th, 2026

i-ETC is an annual event organized in unison with Brigham Young University (BYU), Utah Valley University (UVU), Utah State University (USU), Idaho State University (ISU), Montana State University (MSU), Weber State University (WSU), and several of Utah's technology industries located along Silicon Slopes. The Institute of Electrical and Electronics Engineers (IEEE) is the technical sponsor of i-ETC conferences. All papers presented at the conference will be published in the conference proceedings. Accepted papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements. The conference will offer several paper and poster awards to eligible students. i-ETC will be held in person, and papers that are accepted and registered but not presented at the conference will not be published in IEEE Xplore.

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Jared Jewell (BYU), Local Arrangements Committee Member

i-ETC Conference Itinerary

Friday, May 8th

8:00 am: WSC Garden Court, Registration/Breakfast

8:45 am: WSC Varsity Theater, Opening Remarks

9:00 am: WSC Varsity Theater, Keynote Presentation

10:00 am: HBLL/HRCB, Technical Sessions 1A-1B

10:00 am: HRCB, Technical Sessions 1C-1D

12:00 pm: WSC Garden Court, Lunch and Poster Session

2:00 pm: HBLL, Technical Sessions 2A-2D

4:20 pm: HRCB, Technical Sessions 3A-3D

7:00 pm: Optional Social Activities

Meet at WSC (east entrance) for the Bridal Veil Falls activity
or MLBM for the Museum tour

Saturday, May 9th

8:00 am: WSC Garden Court, Breakfast

8:30 am: WSC Varsity Theater, Keynote Presentation

9:50 am: HBLL, Technical Sessions 4A-4B

9:50 am: HRCB, Technical Sessions 4C-4D

11:30 am: WSC Garden Court, Lunch and Poster Session

1:30 pm: HBLL/HRCB, Technical Sessions 5A-5D

2:30 pm: WSC Varsity Theater, Award Announcements and Closing Remarks

i-ETC Friday May 8th

i-ETC Conference Opening - Friday 8:00 am to 10:00 am

Garden Court, Wilkinson Student Center (WSC)

8:00 am: Registration/Breakfast, WSC Garden Court

Varsity Theater, Wilkinson Student Center (WSC)

8:45 am: Opening Remarks

9:00 am: Opening and Keynote Speaker - Heath Hall, Technical Services Director, Ash Grove Cement

Cement Manufacturing: Interconnected Engineering, Energy, and Environmental Opportunities

This presentation examines how cement is produced, its environmental impact, and the engineering innovations helping reduce emissions and improve sustainability.

Heath Hall is Director of Technical Services for the Western Region at Ash Grove Cement Company, with over 15 years of experience in the cement industry and 7 years in ready-mixed concrete. His work focuses on materials and quality control, and he is an active member of ASTM Committees C01 (Cement, Lime, and Gypsum) and C09 (Concrete and Aggregates). He holds BS and MS degrees in biological engineering from Utah State University and lives in Nephi, Utah, with his wife and four children.

Friday Session, 10:00 am until 12:00 pm

1A (Engineering 1A)

Room 3714, Harold B. Lee Library (HBLL)

10:00 am: Effects of Voltage Biasing in Photoelectro chemical Etching in Silicon

Aaron M Bencomo (Brigham Young University, USA); Blake P Crosby (Brigham Young University, USA); Alexander J Horspool (Brigham Young University, USA); Ethan W Graham (Brigham Young University & Nielson Scientific, USA); Jared Payne (Brigham Young University, USA); Gregory Nielson (Nielson Scientific, USA); Stephen Schultz (Brigham Young University, USA)

10:20 am: Light Coupling in Adjacent Waveguides with Scattering Enhanced Surfaces

Aiden Carter (Brigham Young University, USA); Alton Overson (Brigham Young University, USA); James G Harkness (Brigham Young University, USA); Holger Schmidt (University of California Santa Cruz, USA); Aaron R Hawkins (Brigham Young University, USA)

10:40 am: Plasma Activated Lamination for High Performance Terahertz Metal-Mesh Filters

Bryson Decker (Brigham Young University, USA); Christopher A Chinh (Brigham Young University & Nielson Scientific, LLC, USA); Stephen Schultz (Brigham Young University, USA); Gregory Nielson (Nielson Scientific, USA); Ellie Hopkins (Brigham Young University, USA); Seth Cheney (Brigham Young University, USA); Bradley E Ferguson (Brigham Young University & Nielson Scientific, USA)

11:00 am: Fabrication of a Thin-Film Terahertz Polarizers Using Photolithography

Ellie Hopkins (Brigham Young University, USA); Christopher A Chinh (Brigham Young University & Nielson Scientific, LLC, USA); Stephen Schultz (Brigham Young University, USA)

11:20 am: Measuring and Compensating for Distortion of 3-Dimensional Structures in Ultra Thin Multi-Layer Materials During Laser Micro-Machining, Lamination, and Electroplating

Cael Black (Brigham Young University, USA); Stephen Schultz (Brigham Young University, USA)

11:40 am: The Optimization of DRIE Tool to Reduce Bulls-Eye Non-Uniformity

Ms. Marzia Zaman (McDaniel College, USA); Sanjoy K. Saha (McDaniel College, USA)

1B (Engineering 1B)

Room 3710, Harold B. Lee Library (HBLL)

10:00 am: Air Entrainment of Concrete Comprising Natural Pozzolan

Jared W. Jewell (Brigham Young University, USA); Matthew Christensen (Brigham Young University, USA); Battsagaan Ilch (Brigham Young University - Provo, USA); W. Spencer Guthrie (Brigham Young University, USA); Taylor J. Sorensen (Brigham Young University, USA)

10:20 am: Characterization of Engineered Cementitious Composites for Electrified Pavement Applications

Mahmoud Ali (Utah State University, USA); Srishti Banerji (Utah State University, USA); Marvin W Halling (Utah State University, USA)

10:40 am: Comparison of Marshall and Gyrotory Compaction Methods for Preparing Specimens of Foamed-Asphalt-Stabilized Base for Indirect Tensile Strength Testing

Sarah Jaen Hosey (Brigham Young University, USA); W. Spencer Guthrie (Brigham Young University, USA)

11:00 am: Use of Twisted Steel Reinforcement for Reducing Concrete Pavement Thickness

Richard H. Brandi (Brigham Young University, USA); Christopher R Bondy (Swanson School of Engineering University of Pittsburgh, USA); W. Spencer Guthrie (Brigham Young University, USA)

11:20 am: Production and Performance Characterization of Ground Glass Pozzolan Derived from Utah Mixed Waste Glass

Rosemary Yahne (Utah State University, USA); Srishti Banerji (Utah State University, USA)

11:40 am: Mechanical, Durability, and Bond Characteristics of UHPC for Bridge Deck Overlay Applications

Asher Neitsch (Utah State University, USA); Srishti Banerji (Utah State University, USA); Jovan Tatar (University of Delaware, USA)

1C (Technology 1C)

Room 122, Herald R. Clark Building (HRCB)

10:00 am: Learning-Driven Quantized Gossip Consensus via UCB Multi-Armed Bandits in Semi-Regular MGML Networks

Md. Mehedi Hasan (Islamic University of Technology, Bangladesh); Jabir Ahmad Jahin Bhuiyan (Islamic University of Technology, Bangladesh); Syed Istiuk Raja (Islamic University of Technology, Bangladesh); Jaxon Larsen (Utah Valley University, USA); Mohammad T. Kawser (Islamic University of Technology, Bangladesh); Imtiaz Parvez (Utah Valley University, USA)

10:20 am: A Review of Data Driven Virtual Sensors for Internal Combustion Engines: Architectures, Applications, and Challenges

Kanan Roy Chowdhury (Idaho State University, USA); Atulan Gupta (Idaho State University, USA); Antora Dev (Idaho State University, USA); Marco P Schoen (Idaho State University, USA)

10:40 am: A Graph-Attentive LSTM Model for Malicious URL Detection

Md. Ifthekhar Hossain (Dhaka University of Engineering & Technology, Bangladesh); Kazi Abdullah Al Arafat (Atish Dipankar University of Science and Technology, Uttara, Dhaka, Bangladesh); Bryce Shepard (Utah Valley University, USA); Kayd Craig (Utah Valley University, USA); Imtiaz Parvez (Utah Valley University, USA)

11:00 am: Model Reconstruction from Topology Optimization: A Case Study

Caleb Jones (Brigham Young University, USA); Kendrick M Shepherd (Brigham Young University, USA)

11:20 am: Design and Classroom Deployment of a Reconfigurable Fault-Insertion Platform for Electrical Diagnostics

Scott Hadzik (Weber State University, USA); Brandon Stevenson (Weber State University, USA)

1D (Computing 1D)

Room 117, Herald R. Clark Building (HRCB)

10:00 am: Kolmogorov-Arnold Network Estimation of Solutions to Biochemical Systems

Joshua Ologbonyo (Mercer University, USA); Emmanuel O Adara (Binghamton University, USA)

10:20 am: Beyond Pass/Fail: Multi-Model Vulnerability Profiling of Academic Assessment Questions

Qudrat E Alahy Ratul (Utah Valley University, USA); Eshita Zaman (Utah Valley University, USA); Saikat Das (Utah Valley University, USA)

10:40 am: Impact of Data Imputation on Overfitting in ICU Length of Stay Predictions

Mahmad Isaq Karankot (Montana State University, USA); Bradley M Whitaker (Montana State University, USA)

11:00 am: Computational Optimization of "Genqo": A Gaussian State Quantum Optics Modeling Engine

Jacob Gunnell (Brigham Young University, USA); Stefan Krastanov (University of Massachusetts Amherst, USA); Ryan Camacho (Brigham Young University, USA); Gabe Richardson (University of Maryland, USA)

11:20 am: Analysis of Use of B-Splines in Numerical Modeling of Chloride Diffusion in Concrete

Eliana Patricia Salangad Royales (Brigham Young University, USA); Ramin Pahnabi (Brigham Young University, USA); Kendrick M Shepherd (Brigham Young University, USA); W. Spencer Guthrie (Brigham Young University, USA)

11:40 am: ICALCC: Locally Centered Contrast Functions for FastICA with GPU Acceleration

Tetsuya Saito (Kleinverse AI, Inc., USA & Globiz Professional University, Japan)

**Lunch and Poster Presentations - 12:00 pm until 2:00 pm
Garden Court, Ernest L. Wilkinson Student Center (WSC)**

Friday Session, 2:00 pm until 4:00 pm

2A (Engineering 2A)

Room 3714, Harold B. Lee Library (HBLL)

02:00 pm: ANFIS-Ba Frequency Regulation in ased Grid-Forming Inverter Control for Two-Area Interconnected Power System

Muhammad Shehzore Hashmi (Montana State University - Bozeman, USA);
Shamsun Nahar Edib (Montana State University, USA)

02:20 pm: Cyberattack Detection in Smart Grids: A Survey of Machine Learning Approaches and Challenges

Md Sadman Hasan (Idaho State University, USA); Mohamed I. Ismail (Idaho State University, USA & Modern Academy for Engineering and Technology, Egypt);
Mohamed I. Ibrahim (Augusta University, USA); Mostafa Fouda (Idaho State University, USA)

02:40 pm: Machine Learning-Assisted RIS Beamforming for Secure Smart Grid Communications

Mohamed I. Ismail (Idaho State University, USA & Modern Academy for Engineering and Technology, Egypt); Ahmed Elsayed Al Wakeel (Suez University, Egypt); Rhana Mahmoud Elshishtawy (Idaho State University, USA); Mohamed I. Ibrahim (Augusta University, USA); Zubair Md Fadlullah (University of Western Ontario, Canada); Mostafa Fouda (Idaho State University, USA)

03:00 pm: A Learning-Driven Gossip Consensus for Smart Grid Applications

Syed Istiuk Raja (Islamic University of Technology, Bangladesh); Jabir Ahmad Jahin Bhuiyan (Islamic University of Technology, Bangladesh); Md. Mehedi Hasan (Islamic University of Technology, Bangladesh); Kayd Craig (Utah Valley University, USA); Mohammad T. Kawser (Islamic University of Technology, Bangladesh); Imtiaz Parvez (Utah Valley University, USA)

03:20 pm: MYCO-MARKET: A Single-Round Feeder-Level Double Auction for Network-Constrained Peer-to-Peer Energy Trading

Yomna Mohamed (Idaho State University, USA); Zubair Md Fadlullah (University of Western Ontario, Canada); Mostafa Fouda (Idaho State University, USA)

03:40 pm: GIC Modeling for a Three-Phase, Three-Limb Transformer: Line-Resistance Sensitivity

Julien Aganze (University of Oklahoma, USA); Paul Moses (University of Oklahoma, USA)

2B (Engineering 2B)

Room 3710, Harold B. Lee Library (HBLL)

02:00 pm: A Lightweight MRAC Torque Overlay for LOC-Tuned Quadrotor Attitude Loops

Ahmed Mohamed Shehata (Idaho State University, USA); Marco P Schoen (Idaho State University, USA)

02:20 pm: Local-Optimal Digital PID Tuning for the Parrot Mambo Minidrone Attitude Loop

Ahmed Mohamed Shehata (Idaho State University, USA); Marco P Schoen (Idaho State University, USA)

02:40 pm: Comparative Analysis of Soft Actor-Critic Evolution Strategy Optimized TD3 RL for Bipedal and Robot Locomotion

Atulan Gupta (Idaho State University, USA); Kanan Roy Chowdhury (Idaho State University, USA); Marco P Schoen (Idaho State University, USA)

03:00 pm: Objective Inference for Nonlinear Dynamical Games with Control Constraints

Logan Lancaster (Utah State University, USA); Matthew W. Harris (Utah State University, USA)

03:20 pm: Decentralized Coverage Control for Multi-Agent Systems with Limited Connectivity Using Reinforcement Learning

Robert William Stallworth IV (United States Naval Academy, USA); Erick Rodriguez-Seda (United States Naval Academy, USA)

03:40 pm: An Adaptive Gossip Consensus Framework with UCB Multi-Armed Bandits for Limited-Bandwidth Networks

Jabir Ahmad Jahin Bhuiyan (Islamic University of Technology, Bangladesh); Md. Mehedi Hasan (Islamic University of Technology, Bangladesh); Syed Istiuk Raja (Islamic University of Technology, Bangladesh); Kayd Craig (Utah Valley University, USA); Mohammad T. Kawser (Islamic University of Technology, Bangladesh); Imtiaz Parvez (Utah Valley University, USA)

2C (Computing 2C)

Room 122, Herald R. Clark Building (HRCB)

02:00 pm: Secure-by-Design Framework for Agentic AI: Mitigating Toxic Flows and Adversarial Exploits in Multi-Agent Ecosystems

Amani Shatnawi (Weber State University, USA); Anas Mohammad Ramadan AlSobeh (Utah Valley University, USA & Yarmouk University, Jordan); Samer Khamaiseh (Miami University, USA); Muhammad Al-Abdullah (University of Tampa, USA)

02:20 pm: DataGovAI: A Multi-Agent RAG System for Government Data Retention Compliance with Privacy-Preserving Evaluation

Majid Memari (Utah Valley University, USA)

02:40 pm: AI-ClassSims: Multi-Agent LLM Classroom Simulation with Real-Time Feedback for Teacher Training

Majid Memari (Utah Valley University, USA); Krista Ruggles (Utah Valley University, USA)

03:00 pm: QVAS: A Multi-Dimensional Framework for Scoring Exam Question Vulnerability to Large Language Models

Qudrat E Alahy Ratul (Utah Valley University, USA); Eshita Zaman (Utah Valley University, USA); Saikat Das (Utah Valley University, USA)

03:20 pm: Scalable Privacy-Preserving Synthetic Postpartum Depression Narratives with Large Language Models

Sara Sezavar Dokhtfaroughi (Utah State University, USA); Chris Winstead (Utah State University, USA)

03:40 pm: A Systematic Evaluation of Recurrent Architectures for Binary Solar Flare Prediction from Multivariate Time Series

Syed Abrab Mahmood (University of Massachusetts at Lowell, USA)

2D (Computing 2D)

Room 117, Herald R. Clark Building (HRCB)

02:00 pm: Generative AI, Large Language Models, and Agentic AI for Fashion and Textile Supply Chains: A Concise Survey

Qudrat E Alahy Ratul (Utah Valley University, USA); Toufiq Imroze Pritul (National Institute of Textile Engineering and Research (NITER), Bangladesh)

02:20 pm: Effects of Graphical Fidelity on Simulation-to-Reality Object Detection for Underwater Environments

Sterling Chargois (Cornell University, USA); Flint Morgan (Montana State University, USA); Bradley M Whitaker (Montana State University, USA)

02:40 pm: Observations on YOLO's Detection Biases

Liam G. White (Montana State University, USA); P. Flint Morgan (Montana State University, USA); Bradley M Whitaker (Montana State University, USA)

03:00 pm: Neural Network-Based Object Localization in Turbid Media

Tate Dickson (Utah Valley University, USA); Justin Webster (Utah Valley University, USA); Shawn Pepper (Utah Valley University, USA); Vern Hart (Utah Valley University, USA)

03:20 pm: An Experimental Study of Planar Homography Augmentation for Real-World Instance Segmentation

Nadim Dib (Idaho State University, USA); Anish Sebastian (Idaho State University, USA)

03:40 pm: Machine Learning-Based Instance Segmentation of Potato Virus Y (PVY) Symptoms in Seed Potato Crops Using RGB Imagery

Muhammad Shehzore Hashmi (Montana State University - Bozeman, USA); Siddat B Nesar (Montana State University, USA); Walter Zidack (Montana State University - Bozeman, USA); Bradley M Whitaker (Montana State University, USA); Paul W Nugent (Montana State University, USA)

Friday Session, 4:20 pm until 6:00 pm

3A (Engineering 3A)

Room 3714, Harold B. Lee Library (HBLL)

04:20 pm: Drop Formation for 3D Microfabricated Structures

Alton Overson (Brigham Young University, USA); Aiden Carter (Brigham Young University, USA); James G Harkness (Brigham Young University, USA); Anne E Lee (Brigham Young University, USA); Aaron R Hawkins (Brigham Young University, USA)

04:40 pm: Temperature Variation of Water Nucleation in Sealed Capillaries

Ben Goodey (Brigham Young University, USA); Ryan Camacho (Brigham Young University, USA); Chase Miner (Brigham Young University, USA); Aaron R Hawkins (Brigham Young University, USA)

05:00 pm: Thermal Analysis on Spinning Digital Polymerase Chain Reaction Disk

Alex Cantrell (University of Utah, USA); Tim Ameel (University of Utah, USA); Cristian Clavijo (University of Utah, USA)

05:20 pm: Surface Modification of SiO₂ Microchannels to Stabilize Flow Performance

Edward A Marcos (Brigham Young University, USA); Caleb Mackey (Brigham Young University, USA); Michael Lau (Brigham Young University, USA); Susannah Holliday (Brigham Young University, USA); Ephraim M Ong (Brigham Young University, USA); Zariel Macchia (Brigham Young University, USA); Holger Schmidt (UC Santa Cruz, USA); Aaron R Hawkins (Brigham Young University, USA)

05:40 pm: A Nonlinear Finite Element Framework for Dynamic Thin-Film Lubrication Modeling

Spencer Otero (Brigham Young University, USA); Kendrick M Shepherd (Brigham Young University, USA); Quentin Allen (Brigham Young University, USA)

3B (Engineering 3B)

Room 3710, Harold B. Lee Library (HBL)

S04:20 pm: Fabrication of SiO₂ Microchannels Using Photoresist Dewetting for Sacrificial Cores

Ephraim M Ong (Brigham Young University, USA); Edward A Marcos (Brigham Young University, USA); Michael Lau (Brigham Young University, USA); Susannah Holliday (Brigham Young University, USA); Zariel Macchia (Brigham Young University, USA); Holger Schmidt (University of California Santa Cruz, USA); Aaron R Hawkins (Brigham Young University, USA)

04:40 pm: Vacuum Lamination of Thin-Film Polypropylene for Terahertz Filter Spacing

Seth Cheney (Brigham Young University, USA); Christopher A Chinh (Brigham Young University & Nielson Scientific, LLC, USA); Stephen Schultz (Brigham Young University, USA); Gregory Nielson (Nielson Scientific, USA)

05:00 pm: Nozzle Geometry Effect on a Lab-Scale Hybrid Propulsion System

Santiago Bernal (Weber State University, USA); Morgan Britton (Weber State University, USA); Tessie Smith (Weber State University, USA); Dustin Birch (Weber State University, USA); Benjamin Garcia (Weber State University, USA); Pedram Pakseresht (Weber State University, USA)

05:20 pm: Generative AI in Supply Chain Management: Applications, Challenges, and Future Directions

Shijon Das (Idaho State University, USA); Mohamed I. Ismail (Idaho State University, USA & Modern Academy for Engineering and Technology, Egypt); Mohamed I. Ibrahim (Augusta University, USA); Ahmed Hamed (Idaho National Laboratory, USA); Mostafa Fouda (Idaho State University, USA)

05:40 pm: Machine Learning for Early Alzheimer's Detection Using Blood-Based Biomarkers: A Focused Survey

Yomna Mohamed (Idaho State University, USA); Zubair Md Fadlullah (University of Western Ontario, Canada); Mostafa Fouda (Idaho State University, USA)

3C (Engineering 3C)

Room 122, Herald R. Clark Building (HRCB)

04:20 pm: Impact of Wavelet Representation and Data Augmentation on Transfer Learning Models for Noisy Audio Signal Detection

Antora Dev (Idaho State University, USA); Atulan Gupta (Idaho State University, USA); Kanan Roy Chowdhury (Idaho State University, USA); Mostafa Fouda (Idaho State University, USA); Leslie Kerby (Associate Professor, USA)

04:40 pm: Efficient FFT Computation of Zero-Padded Signals, with Application to a Hopping DFT

Todd K Moon (Utah State University, USA)

05:00 pm: A Low-Complexity Noise-Aided Selective-Symbol Flip Decoder for Non-Binary LDPC Codes over QAM Channel

Zinnia Muntaha Mowri (Utah State University, USA); Chris Winstead (Utah State University, USA)

05:20 pm: A Deep Neural Network Based Hybrid Model for Temporal EEG Classification

Kazi Abdullah Al Arafat (Atish Dipankar University of Science and Technology, Uttara, Dhaka, Bangladesh); Md Razuan Hossain (Utah Valley University, USA); Md. Iftekhar Hossain (Dhaka University of Engineering & Technology, Bangladesh); Md. Irfan Hossain (Independent University Bangladesh, Bangladesh); Imtiaz Parvez (Utah Valley University, USA)

05:40 pm: Hybrid Machine Learning Frameworks for Predictive Thermal Management of Lithium-Ion Batteries in Electric Vehicles

Kazi Abdullah Al Arafat (Atish Dipankar University of Science and Technology, Uttara, Dhaka, Bangladesh); Md Razuan Hossain (Utah Valley University, USA); Md. Iftekhar Hossain (Dhaka University of Engineering & Technology, Bangladesh); Md. Irfan Hossain (Independent University Bangladesh, Bangladesh); Md. Fahaduzzaman (Gopalganj University of Science and Technology, Bangladesh); Imtiaz Parvez (Utah Valley University, USA)

3D (Computing 3D)

Room 117, Herald R. Clark Building (HRCB)

04:20 pm: AIRON: An AI-Driven Autonomous Reliability and Self-Healing Framework for Enterprise Data Warehouse Operations Network on GCP

Umamaheswara rao Kukkala (Zions Bancorporation, USA)

04:40 pm: Software Quality-in-Use: A Systematic Literature Review

Yvette D Hastings (Montana State University - Bozeman, USA); Ann Marie Reinhold (Montana State University, USA)

05:00 pm: Characterizing and Codifying Malware Sophistication

Angelo Porcella (Montana State University, USA); Zachary Wadhams (Montana State University - Bozeman, USA); Clemente Izurieta (Montana State University, USA); Jonathan Crussell (Sandia National Laboratories, USA); Ann Marie Reinhold (Montana State University, USA)

05:20 pm: Extensible Data Structures for T-Spline Data Transfer and Visualization

Mitchell Hortin (Brigham Young University, USA); Kendrick M Shepherd (Brigham Young University, USA)

05:40 pm: Minimizing Crossings in Grouped Arc Diagrams

Nathan Corder (Utah Valley University, USA); David Doig (Utah Valley University, USA); Carlos Rubio (Utah Valley University, USA)

Friday Optional Activities

7:00 pm: Museum Tour: Meet at the Monte L. Bean Life Science Museum (MLBM)

7:00 pm: Bridal Veil Falls Activity: Meet at the East entrance by roundabout, Ernest L. Wilkinson Student Center (WSC)

i-ETC Conference Itinerary

Saturday, May 9th

8:00 am: WSC Garden Court, Breakfast

8:30 am: WSC Varsity Theater, Keynote Presentation

9:50 am: HBLL, Technical Sessions 4A-4B

9:50 am: HRCB, Technical Sessions 4C-4D

11:30 am: WSC Garden Court, Lunch and Poster Session

1:30 pm: HBLL/HRCB, Technical Sessions 5A-5D

2:30 pm: WSC Varsity Theater, Award Announcements and Closing Remarks

Saturday, May 9th Itinerary

Keynote, 8:30 am until 9:30 am

Varsity Theater, Wilkinson Student Center

8:30 am: Keynote - Dr. Brian Mazzeo, Professor of Electrical and Computer Engineering | Brigham Young University

Bridge Whispering: Giving Voice to the Secrets of Bridge Decks

This interdisciplinary research uses mechanical excitation and acoustic signal processing to detect internal delamination defects in concrete bridge decks. The result is an automated inspection system capable of operating at highway speeds.

Dr. Brian Mazzeo, originally from Ft. Lauderdale, Florida, earned his BS in electrical engineering from MIT and completed his PhD at Cambridge University as a Marshall Scholar. He joined Brigham Young University in 2008, where he is now a professor of Electrical and Computer Engineering, and his research focuses on electromagnetic and acoustic nondestructive testing, spanning work from protein spectroscopy to developing rapid scanning systems for detecting damage in concrete bridge decks.

Saturday Session, 9:50 am until 11:30 am

4A (Engineering 4A)

Room 3714, Harold B. Lee Library (HBLL)

09:50 am: Pedestrian Bridge Vibrations Under Walking Loads: A Finite Element Simulation Tool for an Individual and Small Group Walking

Amir Hafezi (Idaho State University, USA); Arya Ebrahimpour (Idaho State University, USA)

10:10 am: Comparative Analysis of GSSHA 2-D Gridded Rainfall Hydrologic Analysis Method and Los Angeles County Modifiedational Method in Topanga Creek Watershed

Ana Paola Coloma Laimito (Utah Valley University, USA); Ben J Willardson (Utah Valley University & CWE, USA)

10:30 am: A Semantic Modeling Approach to Transportation Asset Data

Brig Adams (Utah State University, USA); Mohsen Z Esteghamati (Utah State University, USA)

10:50 am: An Innovative Signalized Right-in Right-Out Design for Enhanced Intersection Performance

Khaled Shaaban (Florida Polytechnic University, USA); Ram Kumar (Westpac Group, Australia)

11:10 am: Life-Cycle Economic Assessment of Structured Superhydrophobic Surfaces for Corrosion Protection

Amal S Yagub (Utah Valley University, USA); Iman Bengharbia (Center for Solar Energy Research and Studies (CSERS), Libya); Garrett Wellborn (Utah Valley University, USA)

4B (Engineering 4B)

Room 3710, Harold B. Lee Library (HBLL)

09:50 am: Improved Analysis for Charge Detection Mass Spectrometry (CDMS) of Micron-Sized Particles

Chase Miner (Brigham Young University, USA); Hyrum Jardine (Brigham Young University, USA); Eric Christie (BYU, USA); Shiu-hua Wood Chiang (Brigham Young University, USA); Aaron R Hawkins (Brigham Young University, USA)

10:10 am: Intrinsic Noise, Inter-Sensor Consistency, and Thermal Sensitivity Characterization of Multiple Tri-Axial Magnetometers

Khadijeh Bazargani (South Dakota School of Mines and Technology, USA); Semonti Banik (South Dakota School of Mines and Technology, USA); Taher Deemyad (South Dakota School of Mines & Technology, USA)

10:30 am: Spatial Characterization of Tri-Axial Magnetometers Under near-Field Magnetic Excitation

Semonti Banik (South Dakota School of Mines and Technology, USA); Khadijeh Bazargani (South Dakota School of Mines and Technology, USA); Taher Deemyad (South Dakota School of Mines & Technology, USA)

10:50 am: Electrostatic Actuation of Stretched SU8 Membranes

Jordyn Palmer (Brigham Young University, USA); Tyler Adams (Brigham Young University, USA); Aaron R Hawkins (Brigham Young University, USA)

11:10 am: Testing of 3D Printed Materials for Toxicity and Biohazards for Human-Grade Applications

Matt A Thomas (UVU, USA); Abolfazl Amin (Utah Valley University, USA); Israd Jaafar (Utah Valley University, USA); Abdenour Seibi (Utah Valley University, USA)

4C (Engineering 4C)

Room 122, Herald R. Clark Building (HRCB)

09:50 am: Multi-Temporal Sentinel-2 Based Soil pH Estimation with Cross-Field Validation

Siddat B Nesar (Montana State University, USA); Bradley M Whitaker (Montana State University, USA); Paul W Nugent (Montana State University, USA)

10:10 am: A Comparative Study of Convolutional Neural Networks and Vision Transformers for Automated Traffic Sign Condition Assessment

Shailaja Ratna Pandey (Utah State University, USA); Mohsen Z Esteghamati (Utah State University, USA)

10:30 am: Building Classification Using a YOLO Object Detection Model Trained on Aerial Imagery

Connor Williams (Brigham Young University, USA); Kaylen Turley (Brigham Young University, USA); Gregory S Macfarlane (Brigham Young University, USA)

10:50 am: Field-Scale Persistent Plant Mapping with Vision and GPS

Jeffrey Taylor (Brigham Young University, USA); Douglas Cook (Brigham Young University, USA); Alex Williams (Brigham Young University, USA); Landon Wheeler (Brigham Young University, USA)

4D (Computing 4D)

Room 117, Herald R. Clark Building (HRCB)

09:50 am: Accelerating Sustainability in Cars Through Open, Modular Interfaces

Brian Durney (Utah Valley University, USA); Edward Durney (A Truly Electric Car Company, USA)

10:10 am: Applying Coverage Control Models to the Position of Baseball Players

Kerry Johnson (United States Naval Academy, USA); Erick Rodriguez-Seda (United States Naval Academy, USA)

10:30 am: The Value of Graph-Based Encoding in NBA Salary Prediction

Junhao Su (Brigham Young University, USA); David Grimsman (Brigham Young University, USA); Chris Archibald (Brigham Young University, USA)

10:50 am: Fashion Review Intelligence with Instruction-Tuned LLMs: A Multi-Task Benchmark

Qudrat E Alahy Ratul (Utah Valley University, USA); Toufiq Imroze Pritul (National Institute of Textile Engineering and Research (NITER), Bangladesh)

11:10 am: Machine Vision-Based Automated Flake Detection with Feedback-Driven Model Improvement

Behzad Karimi (Montana State University - Bozeman, USA); Bradley M Whitaker (Montana State University, USA)

Lunch and Poster Presentations, 11:30 am until 1:30 pm
Garden Court, Ernest L. Wilkinson Student Center (WSC)

Saturday Session, 1:30 pm until 2:30 pm

5A (Engineering 5A)

Room 3714, Harold B. Lee Library (HBL)

01:30 pm: Fostering Critical Generative AI Use and Systems Thinking Through Project-Based Engineering Education

Maxwell Hewes (Boise State University, USA); Katelyn Wada (Boise State University, USA)

01:50 pm: Recent Advances in Compression Casting of Concrete: A State-of-the-Art Review

Tirtha Karmaker (Idaho State University, USA); Arya Ebrahimpour (Idaho State University, USA); Bruce Savage (Idaho State University, USA)

02:10 pm: A Review of Aging Characteristics and Lifespan Estimation of Stator Winding Insulation

Srijana Shrestha (University of Oklahoma, USA); Paul Moses (University of Oklahoma, USA)

5B (Engineering 5B)

Room 3710, Harold B. Lee Library (HBL)

01:30 pm: Comparison of Finite Difference and Finite Element Methods for Modeling Chloride Diffusion in Concrete

Ramin Pahnabi (Brigham Young University, USA); Kendrick M Shepherd (Brigham Young University, USA); W. Spencer Guthrie (Brigham Young University, USA)

01:50 pm: Undergraduate CFD Investigation of Passive Flow Control Techniques for an S1223 Airfoil

Joshua Gull (Utah Valley University, USA); Samuel Scow (Utah Valley University, USA); Matthew S Ballard (Utah Valley University, USA)

02:10 pm: Experimental Investigation of Modified Cylindrical Bluff Bodies for Wind-Induced Piezoelectric Energy Harvesting

Bo Yu (Utah Valley University, USA); Tate Pace (Utah Valley University, USA); Cade Smith (Utah Valley University, USA); Hayden Walton (Utah Valley University, USA); Benjamin Harolds (Utah Valley University, USA)

5C (Technology 5C)

Room 122, Herald R. Clark Building (HRCB)

01:30 pm: Gemified Virtual Exposure Therapy for Germopho A Cross-Platform Based Graphical User Interface Usability Study

Anwar Hossain Efat (Idaho State University, USA); Farjana Eishita (Idaho State University, USA)

01:50 pm: Four Planning Considerations for Integrating Generative AI in Animation Workflows: A Practice-Based Framework for Practitioners

Eric Oliver (Utah Valley University, USA); Sebastien Nicolas Gallego (The Church of Jesus Christ of Latter Day Saints, USA); Daniel Hatch (Utah Valley University, USA)

02:10 pm: A Retrospective Analysis of an Effort-Contingent Flexible Deadline Policy in Computer Science Courses

Frank Jones (Utah Valley University, USA)

5D (Computing 5D)

Room 117, Herald R. Clark Building (HRCB)

01:30 pm: DOTKey: A Self-Calibrating Gesture-Driven Typing System with Continuous Recalibration

Frank Jones (Utah Valley University, USA)

01:50 pm: Teaching Autonomous Systems Through Platform-Based Computing Instruction

Scott Hadzik (Weber State University, USA); Meher Shaikh (Weber State University, USA); Brandon Stevenson (Weber State University, USA)

02:10 pm: Beyond the Code: A Practical Evaluation of How Educational Hackathons Support Belonging and Engagement

Chelsea Harding (Utah State University, USA); John M Edwards (Utah State University, USA); Sadra Jafari (Utah State University, USA)

Awards Ceremony, 2:30 pm until 3:00 pm

