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09:00-10:15 Regency H	**Technical Session I: Advances in Manufacturing and Processing of Polymers and Composites 1** *Session Chair: Erina Joyee*	
MSEC-154422	Su Yu, Jonathan Colton	Applying Hybrid Deep Neural Networks With Manually Derived Layers To Model Compression Strength Of Angled Cfrp In Aerospace Industry
MSEC-155176	Riley Rohauer, Kory Schimmelpfennig, Vincent Mei, Perrin Woods, Christopher L. Lewis, Md Ahasan Habib	Characterization and Prediction of Properties of Polymeric Materials for Extrusion-Based Bioprinting Process
MSEC-155261	Dr. Tabrej Khan, Tamer A. Sebaey	Characterization of the Quasi-Static Axial Crushing of Multi-Tubular Frp Composite Structures Using Commercially Available Frp Tubes and Pu Foam Filling.

09:00-10:15 Magnolia	**Technical Session I: Advances in Surface Engineering: Process, Metrology, and Property/Performance 1** *Session Chair: Yiliang (Leon) Lia*	
MSEC-155315	X. David Zhang, Xinchao Liu, Yifeng Wang, Chuck Zhang	A Study Of Effects Of Geometric Form Variations To Diametric Differential Of Threads
MSEC-155704	Shayan Bayki, Pushpendra Kumar, Soham Mujumdar	Enhancing Micro-Hardness of Mild Steel by Dbd Plasma Jet Enhanced Chemical Vapor Deposition of Tio2
MSEC-155736	Anurag Virendra Srivastava, Bhanupratap Gaur, Soham Mujumdar	Deposition of Titanium on Aluminum Using Electrical Discharge Coating Process With Additively Manufactured Tool

09:00-10:15 Gardenia	**Technical Session I: Explainable AI for Knowledge Discovery in Manufacturing Systems 1** *Session Chair: Grace Guo*	
MSEC-153006	Miles Bimrose, James Shin, Christopher Conway, Sameh Tawfick, William King	Fused Deposition Modeling Source Identification From Smartphone Photographs And Deep Learning
MSEC-155351	Chengyang Huang, Joseph Cohen, Xun Huan	Data-Driven Prediction and Uncertainty Quantification on Chemical Concentration in Electroless Plating Process
MSEC-155404	Joseph Cohen, Xun Huan	An Industrial Framework for Explainable Anomaly Detection: A Case Study for Pick-and-Place Machines

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09:00-10:15 **Regency G**	**Technical Session I: Smart Additive Manufacturing 1** *Session Chair: Azadeh Haghighi*	
MSEC-152596	Longfei Zhou, Rojan Dahal, Xiaoxu Ji	Automatic Powder Bed Leveling For Direct Metal Laser Sintering Based On Machine Learning
MSEC-154527	Hyewon Shin, Seung Woo Paek, Nang Shwe Htike, Sang Won Lee	Development of an Artificial Intelligence Model for Height Prediction Using Multi-Sensor Melt-Pool Data in Directed Energy Deposition Process
MSEC-155542	Haozhe Zheng, Yuxin Tong, Nathaniel Wood, Uduak Inyang-Udoh	Multi-Input Iterative Learning Control for Laser Powder Bed Fusion
09:00-10:15 **NOMA B&C**	**Technical Session I: Student Manufacturing Design Competition I** *Session Chairs: Johnson Samuel and Jaydeep Karandikar*	
	Authors N/A	Hydrogel Polymer Aliquoting for Lyophilization - The University of Texas at Dallas
	Authors N/A	An Integrated Framework for Aerospace Component Repair Using Hybrid Laser Wire Additive Manufacturing - The University of Arizona, Tucson
	Authors N/A	Additive Manufacturing with Robotics to Enable Swarm Applications - The University of Texas at Austin
10:30-11:45 **Regency H**	**Technical Session II: Advances in Manufacturing and Processing of Polymers and Composites 2** *Session Chair: Felicia Stan*	
MSEC-155352	Yizhen Zhu, Shah Md Ashiquzzaman Nipu, Parimal Prabhudesai, Sheefali Ajay Balapure, Cindy Xiangjia Li	Linear Volumetric 3D Printing: Dual-Wavelength Initiation and Inhibition for Light-Induced Direct Growth
MSEC-155590	Felicia Stan, Catalin Fetecau, Ionut-Laurentiu Sandu, Adriana-Madalina Constantinescu (Turcanu)	Fused Granulate Fabrication of Polypropylene Carbon Nanotube Composites: A Preliminary Study
MSEC-155762	Andrew Lefors, Parsa Akbari, Shahrzad Rahmani, Roland Chen	A Scalable Fabrication Method for High Drug-Loading Capacity Hollow Microneedles

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10:30-11:45 Magnolia	**Technical Session II: Advances in Surface Engineering: Process, Metrology, and Property/Performance 2** *Session Chairs: Beiwen Li and Avik Samanta*	
MSEC-155905	Akhter Zia, Syed Comail Abbas, Bashir Khoda	Engineering Mof-Enhanced 3D-Printed Monoliths for Scalable and Sustainable Water Filtration Solutions: Tackling Contaminant Leaching and Adsorption
JMSE-24-1484	Authors N/A	[J] ADDOPT: An Additive Manufacturing Optimal Control Framework Demonstrated in Minimizing Layer-Level Thermal Variance in Electron Beam Powder Bed Fusion
JMSE-25-1079	Authors N/A	[J] Dynamic Cutting Force Estimation via Fourier Neural Operator (FNO) with Inferred 1 Machine Tool Dynamics: A Proof of Concept

10:30-11:45 Gardenia	**Technical Session II: Explainable AI for Knowledge Discovery in Manufacturing Systems 2** *Session Chair: Yossi Cohen*	
MSEC-155588	Sida Zhang, Richard Povinelli, Joseph Domblesky	Ensembling Deep Learning Models for Medal Surface Defect Classification
MSEC-155749	Rong Lei, Yuebin Guo, Weihong Guo	Fedscope-Kd: Knowledge Distillation-Enhanced Federated Learning via Shared Composition and Personalized Exploration for Heat Emission Prediction in Additive Manufacturing
MSEC-155761	Hankang Lee, Hui Yang	Multi-Agent Artificial Intelligence to Self-Organize Machine Networks for Resilient Manufacturing

10:30-11:45 Regency G	**Technical Session II: Smart Additive Manufacturing 2** *Session Chair: Prahalada Rao*	
MSEC-155844	Ali Bahrami, Christopher Watson, Dawn Tilbury, Kira Barton	Optimal Feed-Forward and Iterative Learning Control Framework for Enhanced Precision in Extrusion-Based Additive Manufacturing
MSEC-155872	Meysam Faegh, Reihane Arabpoor, Azadeh Haghighi	Leveraging Physics-Informed Neural Networks for Temperature Field Transfer From Single-Track to Multi-Track Multi-Head Additive Manufacturing
MSEC-155726	Jeremy Cleeman, Adrian Jackson, Shane Esola, Chenhui Shao, Hongyi Xu, Rajiv Malhotra	Rapid Real-Time Defect Mitigation for Hardening In-Field Additive Manufacturing to Unknown Extraneous Disturbances

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10:30-11:45 NOMA B&C	**Technical Session II: Student Manufacturing Design Competition II** *Session Chairs: Johnson Samuel and Jaydeep Karandikar*	
	Authors N/A	Smart Manufacturing: Guided Mixed Reality Control for Multiple CNC and 3D Printing Machines - University of Missouri
	Authors N/A	Machine Learning-Assisted Ultrasonic Testing And Its Application In Metal Additive Manufacturing - Auburn University
	Authors N/A	Ultra High-Speed Friction Stir Lap Welding - Brigham Young University
13:45-15:00 Magnolia	**Technical Session III: Advances in Clean Energy and E-Mobility Manufacturing 1** *Session Chairs: Alessandro Ascari and Lei Chen*	
MSEC-155456	Chiara Gianassi, Erica Liverani, Alessandro Ascari, Andrea Tonoli, Andrea Cavagnino, Alessandro Fortunato	Characterization of fesi2.9 and Ss 316l Produced by Directed Energy Deposition for Bimetallic High-Speed Rotors
MSEC-155578	Chun Cao, Tianyu Wang, Mian Li, Yunlong Huang, Junjie Jiang, Songhua Zhang	An Efficient Segment Anything Model Adaptation Method for Electrode Overhang Analysis in Lithium-Ion Battery Manufacturing
MSEC-155294	Xinxin Yao, Karnpiwat Tantratian, Yaohong Xiao, Jinrong Su, Lei Chen	[B] Optimization of External Pressure in Pouch Cell Manufacturing Through Large-Scale Phase-Field Simulation
13:45-15:00 Regency H	**Technical Session III: Advances in Manufacturing and Processing of Polymers and Composites 3** *Session Chair: Kenan Song*	
MSEC-155662	Anasheh Khecho, Erina Baynojir Joyee	Material Behavior of Magneto-Responsive Polymer Composites in Extrusion-Based Direct Writing
MSEC-155691	Ziyi Xu, Shuaiyin He, Koukou Luo, Siqi Chen, Molong Duan	Additive Manufacturing With Continuous Fiber: A Comparison Between Prepreg and In-Situ Impregnated Fiber on Printing Accuracy, Bonding, and Mechanical Performance
MSEC-155740	Hanyu Zhu, Andrew Chang, Nina Valle, Wei Li	Modeling of Phase Separation and Growth in Immiscible Polymer Blends for Fabrication of High-Strength Medical Implants

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13:45-15:00 Gardenia	**Technical Session III: Explainable AI for Knowledge Discovery in Manufacturing Systems 3** *Session Chair: Xi Gu*	
MSEC-155771	Samar Saleh, Yuebin Guo, Weihong Guo	Enhanced Counterfactual Explanations for Optimizing 3D Printing Parameters Using Shap and Nearest Neighbor Constraints With Physics-Based Validation
MSEC-155799	Lige Gan, Guangzhi Qu, Xiao Yue	Securing the Smart Factory: Interpretable Machine Learning for Intrusion Detection in Manufacturing
MSEC-155833	Behzad Esmaeilian, Willie Cade, Sara Behdad	Artificial Intelligence-Based Product Durability Assessment
13:45-15:00 Regency G	**Technical Session III: Smart Additive Manufacturing 3** *Session Chair: Molong Duan*	
MSEC-155609	Yuexin Yang, Yi Zhou, Molong Duan	Contact-Force-Based Closed-Loop Control of Multi-Axis Additive Manufacturing With Continuous-Fiber-Reinforced Polymer
MSEC-155759	Angelo Hawa, Yangming Kou, Leonardo Gonzalez, Fred Hicken, Kira Barton	Online Model-Based Input Shaping for Precision Application Processes
MSEC-155431	Artyom Boyarov, Alexander Martinez-Marchese, Chinedum Okwudire	[B] Fragility Aware Grasping With Application for Handling Green Parts 3D Printed Using Binder Jetting
13:45-15:00 NOMA B&C	**Technical Session III: Student Manufacturing Design Competition III** *Session Chairs: Johnson Samuel and Jaydeep Karandikar*	
	Authors N/A	Automated Acrylic Award Sanding Station - Brigham Young University
	Authors N/A	A Novel Tri-Axial Scissor-based Motion System for Advanced Manufacturing - IIT Bombay - India

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09:00-10:15 Magnolia	**Technical Session V: Advances in Clean Energy and E-Mobility Manufacturing 2** *Session Chairs: Yjianlin Li and Erica Liverani*	
MSEC-155706	Alejandro Franco, Francisco Fernandez, Diego Galvez Aranda, Rashen Lou Omongos, Utkarsh Vijay	A Multi-Technique Machine Learning Workflow for Optimizing the Manufacturing Process of Functional Layers in Electrochemical Energy Devices
MSEC-155757	Luohaoran Wang, Jacob Harris, Bhavana Komaraju, Mihaela Banu	Data-Informed Designing of Pultruded Composite Battery Module Separators for Electric Vehicles
09:00-10:15 Regency H	**Technical Session V: Advances in Manufacturing and Processing of Polymers and Composites 4** *Session Chair: Zipen Guo*	
MSEC-155631	Kristofer Laser Jr., Natalie Barkley, Ihab Ragai, Alexander Schlarp, Haden Peters, Jocelyn Mcnany	Investigation of Friction Stir Welding of Polymeric Materials
MSEC-155765	Geun Young Kim, Shreyes Melkote, Jonathan Colton	Application of Chemistry-Informed Neural Networks in Modeling Cure Kinetics of Prepreg Materials
JMSE-24-1557	Authors N/A	[J] Generalized SmartScan: An Intelligent LPBF Scan Sequence Optimization Approach for Reduced Residual Stress and Distortion in Three-Dimensional Part Geometries
09:00-10:15 Gardenia	**Technical Session V: Explainable AI for Knowledge Discovery in Manufacturing Systems 4** *Session Chair: Devesh Upadhyay*	
MSEC-155920	Gunnika Kapoor, Komal Chawla, Tirthankar Ghosal, Kris Villez, Dan Coughlin, Tyden Rucker, Vincent Paquit, Soydan Ozcan, Seokpum Kim	Intelligent Manufacturing Support: Specialized Llms for Composite Material Processing and Equipment Operation
JMSE-23-1591	Authors N/A	[J] Hybrid Semiconductor Wafer Inspection Framework via Autonomous Data Annotation
JMSE-23-1611	Authors N/A	[J] Three-Dimensional Profile Reconstruction and Internal Defect Detection of Silicon Wafers Using Cascaded Fiber Optic Fabry–Pérot Interferometer and Leaky Field Detection Technologies
09:00-10:15 Dogwood	**Technical Session V: Siemens Digital - Sponsored Session** *Session Chair: Vinita Jansari*	
	Authors N/A	Battery Advanced Machine Automation

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09:00-10:15 Regency G	**Technical Session V: Smart Additive Manufacturing 4** *Session Chair: Uduak Inyang-Udoh*	
MSEC-155822	Abdalmageed Almotari, Majed Ali, Gabriel Awuku Dzukey, Ala Qattawi	Predicting Tensile Strength in Laser Powder Bed Fusion (Lpbf) of In718 Using Neural Networks: The Influence of Heat Treatments and Process Parameters
MSEC-155493	Vivek V. Bhandarkar, Rahul Soni, Puneet Tandon	Comparative Performance Analysis of Cnn Models for Cracking Defect Detection in 3D-Printed Polymer Parts
JMSE-23-1528	Authors N/A	[J] Iterative Stress Reconstruction Algorithm to Estimate Three-Dimensional Residual Stress Fields in Manufactured Components
10:30-11:45 Regency H	**Technical Session VI: Advances in Manufacturing and Processing of Polymers and Composites 5** *Session Chair: Kenan Song*	
MSEC-156064	Vivian H Chung, Zinal Patel, Dharneedar Ravichandran, Grace X. Gu	Processing Collagen – Hydroxyapatite Composite for Bone Tissue Engineering: A 3D Printing Perspective
MSEC-155871	Md Zahirul Islam, Prashant Lakhemaru, Luke Gibbon, Eric Hall, Chad Ulven	[B] Laminated Object Manufacturing of Thermoset Composites and Their Mechanical Characterization
MSEC-155869	Christian Narváez Muñoz, Fran Alexis, Nayeli Gomez, Jamil Segura, Cesar Portero, Joseph Guaman, Luis Segura	[B] Nanofibers and Artificial Intelligence: A Synergistic Approach for Next-Generation Sensors
10:30-11:45 Gardenia	**Technical Session VI: Human Integration to Smart Manufacturing Systems 1** *Session Chair: Vinita Gangaram Jansari*	
MSEC-154225	Hassan Hijry, Richard Olawoyin	Human-Centered Stress Monitoring in Smart Assembly Lines Using Explainable Ai With Shap
MSEC-155476	Medhavi Kamran, Snehesh Shrestha, Vinh Nguyen	Cognitive Workload Analysis in Collaborative Robotic Programming of Manufacturing Assemblies Using Teach Pendants
JMSE-24-1569	Authors N/A	[J] Repurposing Supply Chains and Process Planning Across Products Using a Similarity Model Based on Supernetworks

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10:30-11:45 Magnolia	**Technical Session VI: Innovative Welding and Joining Processes of Advanced Materials and Structures 1** *Session Chairs: Xi Gu and Yongbing Li*	
MSEC-155398	Avinash Ravi Raja, Sudesh Singh, Puneet Tandon, Meghanshu Vashista, Mohd Zaheer Khan Yusufzai	[B] Analysis of Friction Stir Welding Defects and Failure: A Preliminary Study
JMSE-23-1768	Authors N/A	[J] Environmental Impact, Mechanical Properties, and Productivity: Considerations on Filler Wire and Scanning Strategy in Laser Welding
JMSE-24-1396	Authors N/A	[J] NoodlePrint: Cooperative Multi-Robot Additive Manufacturing With Helically Interlocked Tiles
10:30-11:45 Regency G	**Technical Session VI: Smart Additive Manufacturing 5** *Session Chair: Tuhin Mukherjee*	
MSEC-155537	Dolor Enarevba, Ahmad Elhabashy, Karl Haapala, Zhaoyan (Andy) Fan	[B] Investigating the Possibility of Product Reconstruction in Manufacturing Using Side Channels – a Systematic Literature Review
MSEC-151300	George Bourgikos, Amit Hegde, Salvador Orozco Martinez, Sannmit Shinde, Ellen Wagman, Carl Herriot, Michael Stender, Christie Crandall	[P] Impact of Baseplate Clamping Location and Type on Residual Stress and Distortion in a Thermal Mechanical Model of Metal Additive Manufacturing
JMSE-23-1529	Authors N/A	[J] A Microchannel Heat Exchanger Produced From a Metal Matrix Composite by Hybrid Laser Powder Bed Fusion and Inkjet Printing
13:45-15:00 Magnolia	**Technical Session VII: Advanced Machining and Deformation Processes 1** *Session Chair: Dinakar Sagapuram*	
MSEC-Invited Talk	Authors N/A	How to Write Succint Review Papers with Tangible Outcomes: A Case Study on Hard Turning White Layer
MSEC-151374	Ravi Srivatsa Bindiganavile Narasimhan, Harshit Chawla, Dinakar Sagapuram	Thermal Modeling of Stick-Slip Frictional Contact in High-Speed Machining

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13:45-15:00 Gardenia	**Technical Session VII: Innovations in Equipment Design, Control and Automation 1** *Session Chair: Huitaek Yun*	
MSEC-155144	Nazanin Mahjourian, Vinh Nguyen	Multimodal Object Detection Using Depth and Image Data for Manufacturing Parts
MSEC-155169	Joseph Domblesky, Richard Povinelli, Ross Crowley, Phil Voglewede	Sensor Based Ann System for Monitoring Die Fill in Forging
JMSE-24-1480	Authors N/A	[J] On the Effects of Substrate Temperature on Glass Internal Modification Using Femtosecond Laser Pulses
13:45-15:00 Regency H	**Technical Session VII: Laser-based Advanced Manufacturing and Material Processing 1** *Session Chair: Wenda Tan*	
MSEC-155483	Rafid Hussein, Shuting Lei	Welding of Preheated Glass Substrates Using Picosecond Laser Pulses
MSEC-155497	Shuhei Kodama, Kosuke Oike, Riku Kosugi, Keiichi Nakamoto	Fabrication of Micro/nano Multiscale Structures on Aluminum Alloy With Control of Laser-Induced Periodic Surface Structure
JMSE-24-1631	Authors N/A	[J] A Machine Learning Approach for Rapid Solution of Three-Dimensional Moving Source Problems in Manufacturing
13:45-15:00 Regency G	**Technical Session VII: Multi-Material Processing in Additive Manufacturing 1** *Session Chairs: Monique McClain and Jay Park*	
MSEC-155373	Max Matura, Jianfeng Ma, Chao Ma	A Numerical Investigation of Alumina Powder Deformation Behaviors During Press Compaction Assisted Binder Jetting
MSEC-155697	Houda Houban, Sukayna Fakher, Jorge Sanchez Medina, Charles Snyers, Dieter De Baere, Zoé Jardon, Michaël Hinderdael	Crack Mitigation in Fe-Cu Hybrid Materials for Additive Manufacturing: A Study of Build Plate Preheating in Ded-Lb
MSEC-155475	Mychal Taylor, Georgia Kaufman, Hayden Fowler, Michael Gallegos, Emily Huntley, Samuel Leguizamon, David Boese, Guhaprasanna Manogharan, Bryan Kaehr	Powercell Packaging Using a Structural Electronics Approach

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15:15-16:30 Magnolia	**Technical Session VIII: Advanced Machining and Deformation Processes 2** *Session Chair: Dinakar Sagapuram*	
MSEC-155328	Shiqi Fang, Sebastian Schorr, Dirk Bähre	Efficient Machine Learning-Based Forecasting of Key Control Parameters for Analyzing Honing Stone Cutting Performance
MSEC-155439	Ravinder Kumar, Ravi Kumar Digavalli	Simulation of Hydroforming of a Two-Wheeler Fuel Tank With Large Depth for Lightweighting
MSEC-155533	Kateland Hutt, Spencer Schmidt, Jaime Van Der Veken, Hitomi Yamaguchi	Abrasive Delivery During Magnetic Field-Assisted Internal Finishing of Complex Additively-Manufactured Channels
15:15-16:30 Gardenia	**Technical Session VIII: Innovations in Equipment Design, Control and Automation 2** *Session Chair: Kyle Saleeby*	
MSEC-155464	James Femi-Oyetoro', Md Mashiur Rahman Shoummo, Bruce Jo	6-DOF (Degrees-of-Freedom) Robotic Arm-Assisted Modal Testing To Identify System Parameters
MSEC-155613	Yuseop Sim, Eunseob Kim, Jiho Lee, Hojun Lee, Dongjun Yun, No Bin Myeong, Yunjae Hwang, Hyung Wook Park, Martin Byung-Guk Jun	Sound Data Augmentation Using Frequency Response Superposition for Machine Tool State Recognition
MSEC-155563	Shih-Hsuan Chien, Burak Sencer	[B] A Neural Network-Based Friction Compensation Method for Machine Tool Feed Drives
15:15-16:30 Regency H	**Technical Session VIII: Laser-based Advanced Manufacturing and Material Processing 2** *Session Chairs: Qiong (Eric) Nian and Xin Zhao*	
MSEC-155596	Satyaki Sinha, Yang Du, Tuhin Mukherjee	Variations in Fusion Zone Geometry, Cooling Rates, and Solidification Parameters During Adjustable Mode Beam Laser Powder Bed Fusion
MSEC-155020	Richard Steinbrecht	[P] Optical Coherence Tomography (Oct) in Combination With Various Welding Tasks
MSEC-155744	Haoran Shi, Fangzhou Li, Wenda Tan	[B] Dynamic Keyhole Behavior and Fluid Flow in Multi-Laser Welding Process

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15:15-16:30 Regency G	**Technical Session VIII: Multi-Material Processing in Additive Manufacturing 2** *Session Chairs: Mostafa Yourdkhani and Elham Mirkoohi*	
MSEC-155857	Payton Baggott, Irtija Nazim, Manasi Shah, Rodrigo Martinez-Duarte	Characterization of Triangular Tungsten Carbide Lattices Material Properties and Structural Changes in Manufacturing With Sustainable Materials
MSEC-155934	Nazanin Tabatabaei, Xuan Song	Characterization of Interfaces Between Layers of Differently Sized Particles in Pressure-Assisted Binder Jetting
JMSE-24-1045	Authors N/A	[J] Additive Manufacturing of Tough Silicone Via Large-Scale, High-Viscosity Vat Photopolymerization
16:45-18:00 Magnolia	**Technical Session IX: Advanced Machining and Deformation Processes 3** *Session Chair: Bruce Tai*	
MSEC-155600	Ruotong Wang, Xin Li, Kaiyan Zhang, Xueping Zhang	Grinding Temperature Prediction Modeling Framework Based on Single-to-Multi Grain Interaction Mechanism
MSEC-155601	Kaiyan Zhang, Xi Li, Ruotong Wang, Xueping Zhang	Ultrasonic Vibration Machining of Copper Graphite Electrode Sheet
MSEC-155585	Tyler Grimm, Ankit Agarwal, Laine Mears	[B] Brief Paper: Electric Pusle Assisted Milling
16:45-18:00 Regency G	**Technical Session IX: Advances in Metal Additive Manufacturing Processes 1** *Session Chair: Hector Siller*	
MSEC-151292	Jackson Motley, Mohammad Arjomandi, Tuhin Mukherjee	Effects of Longitudinal Arc Oscillation on Track Integrity During Collaborative Robot-Assisted Wire Arc Deposition
MSEC-155436	Lutfun Nipa, Hector R. Siller, Reza Mirshams	Nanoindentation-Driven Analysis of Mechanical Properties in Lpbf Ti6al4v
MSEC-154993	Jorge Neira, Ho Yeung	Laser Powder Bed Fusion Process Feedback Control Based on In-Situ Powder Layer Thickness
16:45-18:00 Gardenia	**Technical Session IX: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 1** *Session Chair: Muyue (Margret) Han*	
MSEC-155526	Xiaohan Wu, Venkat Roy, Neha Shakelly, John W. Sutherland, Fu Zhao	Bioleaching Gallium From E-Waste: Comparative Techno-Economic Assessment
MSEC-155605	Digvijaysinh Barad, Bryan Rasmussen	[B] Study on Continuous Compressed Air Flow Estimation: Pressure Decay Method vs Duty Cycle Approach
JMSE-24-1599	Authors N/A	[J] Environmental and Economic Benefits of Harvesting Machine for Magnet-to-Magnet Recycling

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16:45-18:00 Regency H	**Technical Session IX: Smart, Innovative, and Low-cost Tooling Systems for Advanced Materials Manufacturing 1** *Session Chair: Curtis Krick*	
MSEC-155349	Luke Shannon, Xiaoyi Liu, Mahdi Pirani, Hongpeng Yang, Yan Tong, Saeed Farahani	Modernizing Tooling Systems Through the Development of Hybrid Soft Sensors
MSEC-155441	Perrin Woods, Kenneth Houston, Nazmus Sakib, Christopher L. Lewis, Ahasan Habib	From Gantry Systems to Robotic Arms: A Versatile Hybrid 3D Bioprinting Nozzle With Real-Time Uv Curing
MSEC-151342	Hamed Dardaei Joghan, Marlon Hahn, Farin Weinert, Yannis P. Korkolis, A. Erman Tekkaya	[B] Effect of Ball Burnishing and Laser Polishing on the Surface Characteristics of Deposited Layers in Hybrid Additive Laminated Tooling

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09:00-10:15 Magnolia	**Technical Session X: Advanced Machining and Deformation Processes 4** *Session Chair: David Yan*	
MSEC-155627	Aditya Yalamanchili, Dinakar Sagapuram, Prabhakar Pagilla	Real-Time Strip Thickness Control in Metal Peeling
MSEC-155658	Shilun Du, Yingda Hu, Yong Lei	Experimental Analyses on the Damage Effects of the Ultrasonically Activated Surgical Devices
MSEC-151281	Laymin Hoe, Yunfa Guo, Yanjin Lee, Kevin Lizarraga, David P. Yan	Ultraprecision Machining of Additively Manufactured Ti-5553 Alloy for Biomedical Applications
09:00-10:15 Regency G	**Technical Session X: Advances in Metal Additive Manufacturing Processes 2** *Session Chair: Dong Lin*	
MSEC-155594	Richard Baumer, Elvin Vuong, Dmytro Zagrebelnyy, Ezequiel Pessoa	Impact of Interpass Temperature on Properties of Aluminum Er2319 Produced by Wire Arc Additive Manufacturing With a Weave Path
MSEC-155721	Nismath Valiyakath Vadakkan Habeeb, Kevin Chou	Size Effects on Process-Induced Porosity in Laser Powder-Bed Fusion Additive Manufacturing
MSEC-155750	Emmanuel Bamido, Michael Cullinan	Multiphysics Modeling of the Influence of Scanning Parameters on Melt Pool Geometry in Directed Energy Deposition
09:00-10:15 Gardenia	**Technical Session X: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 2** *Session Chair: Jing (Julia) Zhao*	
MSEC-155206	Matthew Triebe, Nehika Mathur, Ashley Hartwell, Kc Morris	Reference Model for Electric Vehicle Battery Recovery in a Circular Economy
MSEC-155344	Hadear Hassan, Amira Bushagour, Abheek Chatterjee, Astrid Layton	Quantitatively Supporting System-Level Sustainability and Resilience in Manufacturing
MSEC-155425	Lakshmi Srinivasan, Fu Zhao	Quantifying Carbon Footprint in Industrial Heat Treatment Processes Through Life Cycle Assessment

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09:00-10:15 NOMA B	**Technical Session X: Doctoral Symposium 1** *Session Chair: Ping Guo*	
MSEC-166148	Vinayak Khade, Saeed Farahani	[P] Context-Aware Multi-Agent Framework for Smart Manufacturing
MSEC-166341	Dolor Enarevba	[P] A Cloud-Enabled Framework for Stakeholder Engagement in the Sustainability Assessment of Biobased Products
MSEC-169302	Xiangyu Jiang, Saeed Farahani	[P] A Federated Digital Twin Platform for Sustainable Composites Manufacturing
MSEC-170267	Sohan Nagaraj	[P] Investigation of Data-Driven Tool Condition Monitoring Systems for Subtractive Manufacturing Processes
09:00-10:15 Regency H	**Technical Session X: Smart, Innovative, and Low-cost Tooling Systems for Advanced Materials Manufacturing 2** *Session Chairs: Saeed Farhani and Hamed Joghan*	
MSEC-155839	Mahdi Pirani, David Kirk, Saeed Farahani	A Novel Low-Cost Tooling via a Hybrid Manufacturing Technology
MSEC-155889	Mason Hynds, Ojas Acharya, Atharva Shastri, Diego Terrazas, Mahdi Pirani, Saeed Farahani	Leveraging Standard Inserts in Fabrication of Low-Cost Tooling for High-Performance Applications
JMSE-24-1389	Authors N/A	[J] Adaptive Online Continual Learning for In-Situ Quality Prediction in Manufacturing Processes
10:30-11:45 Magnolia	**Technical Session XI: Advanced Machining and Deformation Processes 5** *Session Chair: David Yan and Bruce Tai*	
MSEC-155694	Hui Liu, Markus Meurer, Thomas Bergs	Investigation of Tool Temperature During End Milling: Experimental and Numerical Approaches
MSEC-151574	Markus Diegel, Markus Meurer, Thomas Bergs	Performance of Different Diamond Coatings and Substrate Materials in Cutting of Tungsten Carbide With Laser-Treated Tools
MSEC-154821	Kilian Brans, Markus Meurer, Thomas Bergs	Influence of the Material Production Route on the Chip Formation Mechanisms of the Lead-Free Copper-Zinc-Alloy Cuzn42 (Cw510l)

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10:30-11:45 Regency G	**Technical Session XI: Advances in Metal Additive Manufacturing Processes 3** *Session Chair: Ala Qattawi*	
MSEC-155767	Hamed Dardaei Joghan, Philipp Heideck, Farin Weinert, A. Erman Tekkaya, Yannis P. Korkolis	Hybrid Additive Manufacturing of Double-Walled Tubes With Subsequent Forming Processes
MSEC-155899	Aishwarya Sarker, Santosh Thapa, Yang-Tse Cheng, Madhav Baral	[B] Mechanical Characterization of an Additively Manufactured Metallic Super Alloy Using Micro Tensile and Instrumented Indentation Testing
MSEC-155924	Sutonu Oraon, Rajesh Gorai, Shashank Shukla, Soham Mujumdar, Ramesh Singh	Experimental Characterization and Defect Mapping of Coaxial Wire Laser Directed Energy Deposition of Aisi 304
10:30-11:45 Gardenia	**Technical Session XI: Bio-Manufacturing of Engineered Living Materials 1** *Session Chairs: Congrui Jin and Qiming Wang*	
MSEC-155173	Rokeya Sarah, Riley Rohauer, Kory Schimmelpfennig, Shah Limon, Christopher Lewis, Md Ahasan Habib	Development of a Predictive Model to Optimize Bioink Formulations Tailored for Extrusion-Based Bioprinting
MSEC-155442	Yihao Xu, Rokeya Sarah, Yongmin Liu, Bashir Khoda, MD Ahsan Habib	Ai-Guided Bayesian Optimization for Predicting Bioink Viscosity in 3D Bioprinting
MSEC-154895	Authors N/A	Design of Engineered Living Materials for Martian Construction
10:30-11:45 NOMA B	**Technical Session XI: Doctoral Symposium 2** *Session Chair: Ping Guo*	
MSEC-164653	Prateek Gupta, Satish Kumar	[P] Coating of Multiple Layers and Non-Newtonian Liquids on Rotating Discrete Objects
MSEC-165165	Felicia Fashanu	[P] Optimization of Abrasive Machining of Additively Manufactured Veterinary Orthopedic Implants Considering Human-in-the-Loop
MSEC-167464	Putong Kang	[P] Process Innovations in Incremental Sheet Forming (Isf)
MSEC-170318	Aditya Yalamanchili	[P] Modeling and Control of Roll-to-Roll Manufacturing Systems for Metal Peeling

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10:30-11:45 Regency H	**Technical Session XI: Semiconductor Manufacturing: Metrology, Inspection, Equipment, and Processes 1** *Session Chairs: Chabum Lee and Jiyong Park*	
MSEC-155632	Gugyeong Sung, Hyunjae Lee, Heebum Chun, Chabum Lee	[B] 3D Imaging Approach to TSV/TGV Critical Dimension Metrology and Inspection
JMSE-24-1388	Authors N/A	[J] Powder Compaction Characteristics and Modeling of Calendering Process for Powder-Based Solvent-Free Manufacturing of Electrodes for Lithium-Ion Batteries
13:45-15:00 Magnolia	**Technical Session XII: Advanced Machining and Deformation Processes 6** *Session Chairs: Dinakar Sagapuram and Yang Guo*	
MSEC-155808	Desmond Mensah, Sha Ouyang, Qi Zhang, Brad Kinsey, Jinjin Ha	Leveraging Cyclic Bending Under Tension Data and an Artificial Neural Network to Predict Extrapolated Strain Hardening Behavior of Dual Phase Steels
JMSE-23-1745	Authors N/A	[J] Chatter Stability of Orthogonal Turn-Milling Process in Frequency and Discrete-Time Domains
JMSE-24-1104	Authors N/A	[J] Dry Grinding: A More Sustainable Manufacturing Process for the Production of Automotive Gears
MSEC-155693	Felicia Fashanu, Brandon Gee, Barbara Linke	[B] Belt Grinding Simulation to Optimize Manual Grinding Process Parameters
13:45-15:00 Gardenia	**Technical Session XII: Bio-Manufacturing of Engineered Living Materials 2** *Session Chairs: Weinan Xu and Honyu Zhou*	
MSEC-155671	Lily Raymond, Liam Bond, John Samuel Thella, Christina Thella, Pengbo Chu, Yifei Jin	Digital Light Processing of Microfluidic Chips for Cell Separation
MSEC-155912	Ayman Alghamdi, Chuanshen Zhou, Ali Shams, John-Thomas Robinson, Renjing Wang, Taylor Rawlinson, Hitomi Yamaguchi, Yong Huang	Self-Supported Printing of Gelatin Composite-Based Engineered Living Materials
MSEC-152987	Miles Adams	[P] Engineering Biochar Enhanced Mycelium Composites for Sustainable Digital Fabrication and Energy Storage: A Novel Bio-Manufacturing Workflow

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13:45-15:00 **NOMA B**	**Technical Session XII: Doctoral Symposium 3** *Session Chair: Ping Guo*	
MSEC-164596	Shenliang Yang	[P] Modelling of Residual Stresses in Combined Additive Manufacturing and Machining Processes
MSEC-168549	Mitchell Donoughue	[P] Measuring the Effect of Print Parameters and Material Choice on Adhesion in Dissimilar Material Printing
MSEC-170059	Weijun Zhang	[P] A Comprehensive Directed Energy Deposition (Ded) Control System for Geometric Accuracy, Productivity, and Energy Management
MSEC-170201	Ravi Srivatsa Bindiganavile Narasimhan	[P] Direct Production of Sheet and Wire From Copper Contaminated Steel Scrap by Metal Peeling
13:45-15:00 **Regency G**	**Technical Session XII: In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing 1** *Session Chairs: Arvind Shankar Raman and Andelle Kudzal*	
MSEC-155129	Brian Johnstone, Nicole Van Handel, Patrick Merighe, Christopher Saldana, Kyle Saleeby	In-Situ Measurement of Slitted Thin Walls in Laser Powder Bed Fusion
MSEC-155444	Harshin Sanam, Zhenghui Sha	Enhancing In-Situ Monitoring of Cooperative 3D Printing via Edge Detection and Image Augmentation
MSEC-155544	Khawlah Alharbi, Wei William Li, Hantang Qin	Partially Observable Markov Decision Processes (Pomdp) Framework for Decision-Making Under Uncertainty in Ehd Printing Using Image Based Monitoring System
13:45-15:00 **Regency H**	**Technical Session XII: Advances in Manufacturing of Thin Films and Coatings** *Session Chairs: Semih Akin and James Nowak*	
MSEC-155548	Melanie Howe, Luis Mantilla, Abishek Indupally, Rodrigo Martinez-Duarte	Optimization of Surface Roughness in the Electrodeposition Process
MSEC-155660	Nan Wang, Ruixiang Zheng, Runze Cai, Xueke Zheng, Mian Li	Modeling Periodic Defects Under Zigzag Scanning In Roll-To-Roll Manufacturing
MSEC-155708	Gobinda Chandra Behera, Nitin Vilas Desai, Sankha Deb	Implementation of Soft Computing-Based Metaheuristic Algorithms in Multi-Objective Environmentally-Conscious Machining Operation Sequence Optimization With Carbon Emission Reduction

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15:15-16:30 Gardenia	**Technical Session XIII: Advanced Manufacturing of Functional Devices and Bioinspired Structures 1** *Session Chair: Cindy (Xiangjia) Li*	
MSEC-155442	Yihao Xu, Rokeya Sarah, Yongmin Liu, Bashir Khoda, MD Ahsan Habib	AI-Guided Bayesian Optimization for Predicting Bioink Viscosity in 3D Bioprinting
MSEC-155150	Shuai Chen, Qingqing He, Yang Yang, Han Xu	Development and Optimization of a Top-Down 3D Printing System for Single-Tank Multi-Material Fabrication Using Hydrogel-Rochelle Salt Composites
MSEC-155202	Leila Daly, Ibrahim Gusau, Riley Rohauer, Perrin Woods, Md Ahasan Habib, Christopher Lewis, Krittika Goyal	Development and Characterization of a 3D-Printable Pdms Composite With Batio3 for Enhanced Force Sensing in Soft Robotics

15:15-16:30 Regency H	**Technical Session XIII: Advances in Meso, Micro, and Nano Subtractive and Formative Manufacturing 1** *Session Chair: Soham Mujmudar*	
MSEC-155570	Nikita Shubin, Muhammad Jahan	Machining High-Aspect-Ratio Microelectrodes Using Micro-Edm-Based Self-Drilled Holes Technique
MSEC-155926	Prathamesh Nachankar, Aswani Kumar Singh, Anurag Virendra Srivastava, Soham Mujumdar	Performance Evaluation of Powder Mixed Electric Discharge Drilling for High Aspect Ratio Holes in Aluminium Alloy (Al7075)
MSEC-155640	Dilan Ratnayake, Douglas Jackson, Daniel Sills, Andriy Sherehiy, Dan Popa, Kevin Walsh	[B] Characterization of Aerosol Printing Conductive Traces and Custom Strain Gauges on Pcb

15:15-16:30 Magnolia	**Technical Session XIII: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 3** *Session Chairs: Jing (Julia) Zhao and Muyue (Margret) Han*	
MSEC-155909	Prawin Sankar Balasubramaniam Ramesh Chandar, Barbara S Linke	A Deeper Look Into Fdm Printing: An Energy and Surface Topography Study
JMSE-24-1366	Authors N/A	[J] Concept of Error Compensation for Nonorthogonality in Two-Axis Displacement Measurement System Utilizing Single Grating Scale and Littrow Configuration
MSEC-155785	Nobel Karmakar, C. S. Kumar, Poonam Sundriyal	Fabrication of Alsi10mg Lattice Structure as Battery Electrodes via Laser Powder Bed Fusion Process

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15:15-16:30 **NOMA B**	**Technical Session XIII: Doctoral Symposium 3** *Session Chair: Ping Guo*	
MSEC-166325	Tengteng Tang, Tengteng Tang	[P] Electrically Assisted Vat Photopolymerization of Bio-Inspired Functional Materials
MSEC-165774	Yunxia Chen	[P] Fabrication of Sensor-Embedded Heterogeneous Brain Simulant for the Evaluation of Impact-Induced Mild Traumatic Brain Injury
MSEC-169530	Zhangke Yang	[P] Deciphering and Translating Bioinspired Structures for Engineering Materials Design via Computational Modeling
MSEC-166983	Authors N/A	[P] Bioinspired 3D Printing: From Smart Surfaces to Adaptive Structures
15:15-16:30 **Regency G**	**Technical Session XIII: In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing 2** *Session Chair: Samantha Webster*	
MSEC-155551	Zifeng Wang, Samuel Boese, Aidan Sevinsky, Mrudul Satbhai, Ahmad Nourian, Sagar Kamarthi, Sinan Muftu, Xiaoning Jin	Part Authentication Through Encrypted Geometric-Magnetic Fingerprint Fusion in Cold Spray Additive Manufacturing
MSEC-155670	Gadde Deepak, Alaa Elwany, Yang Du	Additive Manufacturing In-Situ Process Monitoring and Stability Analysis
MSEC-155758	Sukayna Fakher, Houda Houban, Dieter De Baere, Jorge Sanchez Medina, Charles Snyers, Sanjeev Sheshadri, Zoe Jardon, Michaël Hinderdael	Effects of Thermal Gradient Control on Residual Stress and Distortion in L-Ded Fabricated Parts
16:45-18:00 **Magnolia**	**Technical Session XIV: Advanced Machining and Deformation Processes 7** *Session Chair: Xialiang Jin*	
MSEC-151844	Tobias Kelliger, Markus Meurer, Thomas Bergs	Tailored Cutting Fluid Supply in Additively Manufactured Milling Tools for Aerospace Applications
MSEC-155739	Madhav Baral, Saroj Majakoti, Santosh Thapa, Yang-Tse Cheng	[B] Understanding Deformation Processes of a Rolled Aluminum Sheet Using Instrumented Indentation
MSEC-156059	Matthew Youssef, Sepideh Abolghasem, Satchit Ramnath, Mahmoud Dinar	[B] Voxel-Based Generative Modeling for Dynamic Process Planning in Subtractive Manufacturing

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16:45-18:00 Gardenia	**Technical Session XIV: Advanced Manufacturing of Functional Devices and Bioinspired Structures 2** *Session Chair: Yang Yang*	
MSEC-155503	Shahid Hussain, Xiaoqing Tian, Dingyfei Ma, Tianlong Chang, Zaiyu Wang, Lian Xia, Jiang Han	Additive Fabrication of Hybrid Carbon Nanotube Composite for Piezoresistive Pressure Sensor and Its Properties
MSEC-155836	Rui Dong, Karla Magdalena Becerra Rosas, Wenda Tan	[B] Fabrication of Hierarchical Porous Copper Structures Using Binder Jetting and Space-Holders
MSEC-155471	Shah M Limon, Rokeya Sarah, Md Ahasan Habib	A Classification-Based Machine Learning Approach to Understand and Infer the Ultimate Successful Bioprinting Process

16:45-18:00 Regency H	**Technical Session XIV: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 4** *Session Chair: Jing (Julia) Zhao*	
MSEC-155848	Ryan Elsasser, Hongliang Li, Ilya Kovalenko	A Digital Twin Framework for Computer Hardware Design and Assembly: A Risk-Prioritized Approach
MSEC-155851	Licheng Liang, Aditya Chivate, Zipeng Guo, Jason Armstrong, Chi Zhou	Roll-to-Roll Manufacturing of Biomass Material for Sustainable Thermal Insulation Application
MSEC-155873	Digvijaysinh Barad, Jordan Buechler, Bryan Rasmussen	[B] Optimizing Compressed Air System Efficiency in Manufacturing: A Study on Air Leak Repairs and Economical Impact

16:45-18:00 Regency G	**Technical Session XIV: In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing 3** *Session Chairs: Andy Fan and Sarah Wolff*	
MSEC-155846	Natalya Kublik, David Deisenroth, Bruno Azeredo	Computer-Aided Analysis of In-Situ Optical Imaging for Melt Pool Visualization and Accurate Laser Position Tracking
MSEC-155840	Laura Duenas Gonzalez, Natalya Kublik, Bruno Azeredo	[B] Modified Archimedes Method for Density Measurements of Samples Presenting Open Porosity
JMSE-24-1162	Authors N/A	[J] Fully Consolidated Deposits From Oxide Dispersion Strengthened and Silicon Steel Powders Via Friction Surfacing

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09:00-10:15 Regency G	**Technical Session XV: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 5** *Session Chair: Muyue (Margret) Han*	
MSEC-155639	Muyue Han, Lingxiang Yun, Yiran Yang, Jing Zhao, Anika Akther	Shared Additive Manufacturing Network for Metal Remanufacturing: Cost-Aware Hub Distribution and Order Allocation
MSEC-155743	Jingwen Wang, Martina Convertino, Lin Li	Sizing and Operation of Hybrid Photovoltaic-Thermal (Pvt) System in Manufacturing Facility Considering Integrated Demand Response
MSEC-155760	Hankang Lee, Hui Yang	Cognitive Digital Twin for Multi-Objective Production Scheduling in Sustainable Manufacturing
09:00-10:15 Gardenia	**Technical Session XV: Advanced Manufacturing of Functional Devices and Bioinspired Structures 3** *Session Chairs: Kethi Lichade and Zipeng Guo*	
MSEC-155649	Pablo Andres Zuniga, Christian Zuniga-Navarrete, Stalin Jamil Segura, Zipeng Guo, Sabur Baidya, Christian Narvaez-Munoz, Jessica Koehne, Luis Javier Segura	Experimental Assessment and Data-Driven Modeling of 3D Printed Conductive Patterns on Electrospun Substrates
MSEC-155868	Sai Hamsitha Reddy Guvvala, Mohammed Gayasuddin Shaik, Ketki Lichade	Single-Layer Photopolymerization Process for the Rapid Fabrication of Nature-Inspired Multifunctional Films
JMSE-24-1531	Authors N/A	[J] Enhancing Production in Robot-Enabled Manufacturing Systems: A Dynamic Model and Moving Horizon Control Strategy for Mobile Robot Assignment
09:00-10:15 Regency H	**Technical Session XV: Innovations in Equipment Design, Control and Automation 3** *Session Chairs: Chandra Nath and Kyle Saleeby*	
MSEC-155879	Mohammed Gayasuddin Shaik, Sai Hamsitha Reddy Guvvala, Uma Bhattacharjee, Ketki Lichade	Rapid Fabrication of Mesoscale Structures Using Digital Light Projection-Based Nozzle-Assisted Continuous Printing
MSEC-155781	Sudhansu Sekhar Nath, Poonam Sundriyal	Optimization of 3d Printed Supercapacitors via Machine Learning
MSEC-155673	Hojun Lee, Young Woon Choi, Evin Lugo, Jiho Lee, Sang Won Lee, Martin Byung-Guk Jun	[B] Gmgp: Generalized Model for Grasp Planning of Vacuum and Parallel Jaw Grippers