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Volumes 1-6

27th International Conference on Advanced Vehicle Technologies (AVT)

45th Computers and Information in Engineering Conference (CIE)

51st Design Automation Conference (DAC)

22nd International Conference on Design Education (DEC)

30th Design for Manufacturing and the Life Cycle Conference (DFMLC)

37th International Conference on Design Theory and Methodology (DTM)

21st IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA)

49th Mechanisms and Robotics Conference (MR)

19th International Conference on Micro- and Nanosystems (MNS)

21st International Conference on Multibody Systems, Nonlinear Dynamics, and Control (MSNDC)

37th Conference on Mechanical Vibration and Sound (VIB)

38th Fluid Power and Motion Control Symposium (FPMC)

August 17–20, 2025
Anaheim, California, USA

Conference Sponsors

Design Engineering Division

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THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

51st Design Automation Conference (DAC)

Dear Colleagues,

On behalf of the DAC Executive Committee, welcome to the **51st ASME Design Automation Conference (DAC)**!

Following a rigorous review process, this year's DAC technical program consists of 103 accepted papers in 21 active research areas, corresponding approximately to an acceptance rate of 85%. This year, we also solicited and accepted 45 presentation-only submissions for the third time at DAC. The technical program will be presented from Monday, August 18 to Wednesday, August 20.

Complementing our technical sessions, we will host the DAC Signature Event on the topic of "**Generative, Generative Design, and Generative Design Thinking**", consisting of a panel of five members of active contributors to DAC:

- Bradley Rothenberg (nTopology Inc.)
- Faez Ahmed (Massachusetts Institute of Technology)
- Ye Wang (EverCurrent Inc.)
- Leah Chong (The University of Texas at Austin)
- Vinayak Krishnamurthy (Texas A&M University)

Please join us for the DAC Technical Committee Meeting on the evening of Tuesday, August 19. During that meeting, we will also present the Design Automation Dissertation Award winner, the Design Automation Young Investigator Award winner, the Design Automaton Award winder, and the DAC Best Paper Award winner. We look forward to our community coming together, meeting old friends, and making new ones.

Ten papers were identified as "Papers of Distinction" from the accepted papers. These papers are listed below, ordered by paper number (and including the assigned session):

- DETC2025-166767 (DAC-03): "Gencad-3d: Cad Program Generation Using Multimodal Latent Space Alignment and Synthetic Dataset Balancing", Nomi Yu, Md Ferdous Alam, A. John Hart, Faez Ahmed.
- DETC2025-168615 (DAC-06): "Multimodal Rag-Driven Anomaly Detection and Classification in Laser Powder Bed Fusion Using Large Language Models", Kiarash Naghavi Khanghah , Zhiling Chen, Lela Romeo, Qian Yang, Rajiv Malhotra, Farhad Imani, Hongyi Xu.
- DETC2025-168619 (DAC-03): "Heterogeneous Metamaterials Design via Multiscale Neural Implicit Representation", Hongrui Chen, Liwei Wang, Levent Burak Kara.
- DETC2025-168723 (DAC-10): "Localized Physics-Informed Gaussian Processes With Curriculum Training for Topology Optimization", Amin Yousefpour, Shirin Hosseinmardi , Xiangyu Sun, Ramin Bostanabad.

- DETC2025-168726 (DAC-01): “Multi-Generation Control Co-Design for Digital Twin-Enabled Systems With Deep Reinforcement Learning”, Ying-Kuan Tsai, Vispi Karkaria, Yi-Ping Chen, Wei Chen.
- DETC2025-168868 (DAC-05): “Fluid-Thermal Topology Optimization With Applications to Heat Sinks, Cooling Jackets and Battery Cooling Plates”, Dimitrios Papadimitriou, Robert Sandboge.
- DETC2025-169099 (DAC-20): “Exploring Efficient Quantification of Modeling Uncertainties With Differentiable Physics-Informed Machine Learning Architectures”, Manaswin Oddiraju, Bharath Varma Penumatsa, Divyang Amin, Michael Piedmonte, Souma Chowdhury.
- DETC2025-169141 (DAC-20): “Seek: Self-Adaptive Explainable Kernel for Nonstationary Gaussian Processes”, Nima Negarandeh, Carlos Mora, Ramin Bostanabad.
- DETC2025-169512 (DAC-08): “Remaining Useful Life Prediction for Hall Thrusters Based on Adaptive Self-Cognizant Dynamic System and Multi-Physics Modeling”, Yuan Jiang, Alexandra N. Leeming, Joshua L. Rovey, Pingfeng Wang.
- DETC2025-169758 (DAC-04): “CAD-Coder: An Open-Source Vision-Language Model for Computer-Aided Design Code Generation”, Anna Doris, Md Ferdous Alam, Amin Heyrani Nobari, Faez Ahmed.

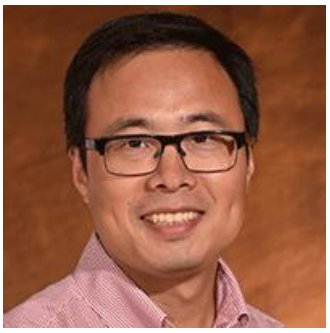
Authors from our community will present these and many other excellent papers throughout the conference. We encourage you to support your colleagues by attending their presentations and participating in the discussions.

Finally, organizing the conference requires the generous effort of many individuals. We are particularly grateful to all session organizers and paper review coordinators:

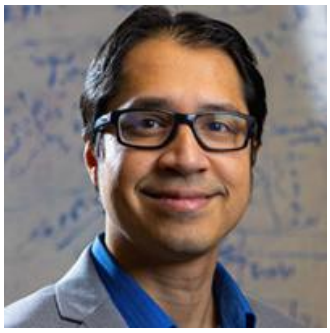
Faez Ahmed, Saeed Azad, A. Emrah Bayrak, Amir Behjat, Amy Bilton, Ramin Bostanabad, Hannah Budinoff, Grace Burleson, Cheng Chen, Jie Chen, Wei (Wayne) Chen, Souma Chowdhury, Abigail Clarke-Sather, Daniel Cooper, Shiguang Deng, Xiaoping Du, Bryony DuPont, Ehsan Esfahani, Yan Fu, Payam Ghassemi, Daniel Herber, Zhen Hu, Horea Ilies, Roshni Anna Jacob, Namwoo Kang, Leifur J Leifsson, Ting Liao, Ketki Lichade, Po Ting Lin, Hemanth Manjunatha, Ali Mehmani, Seung Ki Moon, Steve Paul, Cyril Picard, Lyle Regenwetter, Anabel Renteria, Daniel Selva, Zhenghui Sha, Gulai Shen, Ada-Rhodes Short, Binyang Song, Eun Suk Suh, Andres Tovar, Anh Tran, Liwei Wang, Zequn Wang, Kate Whitefoot, Natasha Wright, Zhimin Xi, Xinyi Xiao, Yinshuang Xiao, Hongyi Xu, Yanwen Xu, Kentaro Yaji, Nita Yodo, Chen Zeng, Fiona Zhao

On behalf of the entire DAC community, we welcome you to another enjoyable and thought-provoking Design Automation Conference.

We look forward to seeing you in Anaheim, CA!



Zhimin Xi
Conference Chair
Rutgers University



Souma Chowdhury
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