The International Conference on Aerospace System Science and Engineering 2025

ICASSE 2025

July 29th - 31st, 2025
Singapore

Organized by

Shanghai Jiao Tong University

Hosted by
National University of Singapore

Technical University of Munich Asia

Supported by
COMAC Shanghai Aircraft Flight Test Co., Ltd.
Moscow Aviation Institute
University of Toronto

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Program

July 29th, 2025 Day 1 Location: T-lab meeting room level 8		
14:00-17:00	**Registration**	
17:30-18:00	**Host: TBD** **Keynote Speech:** Computational Control Framework for Tethered Space Systems	George Zhu
18:00-19:00	**Reception Catering**	

July 30th, 2025 Day 2		
Opening Ceremony **09:00-10:30 (GMT+8)** **Location LT3** **Host: Sutthiphong Srigrarom**		
09:00-09:15	**WELCOME REMARKS** 1. NUS representative 2. TUM-Asia representative 3. Fucheng Liu, Dean of SJTU-SAA	
09:15-09:45	**Keynote Speech:** Aluminum Mining on the Moon for Mars Rocket Fuel	Kimiya Komurasaki
09:45-10:15	**Keynote Speech:** Addressing Control and Dynamics Challenges of eVTOLs	Florian Holzapfel
10:15-10:30	**GROUP PHOTO** **BREAK**	
Day 2 Track 1 **Aircraft Technologies** **10:30-11:35 (GMT+8)** **Location LT3** **Session Chair: Florian Holzapfel**		
10:30-10:50	**Invited Speech:** Next-Gen Technology for Civil Aircraft Flight Test	Yi Mi
10:50-11:05	**Invited Speech:** Model-Based Development for Next-Generation Aerospace Systems	Stephan Myschik
11:05-11:20	Civil Aircraft Pilot Coupling Vibration Analysis and Practice	P0018 Luning Ding
11:20-11:35	Research on Modal Analysis Methods for Flutter Flight Testing	P0021 Wei Dai
Lunch & Poster Session **12:00-13:00 (GMT+8)** **Location Outside area between LT3 and LT4**		

Day 2 Track 1 Computer Vision and Artificial Intelligence 13:30-17:10 (GMT+8) Location LT3 Session Chair: Lingkun Luo		
13:30-13:50	**Invited Speech:** Multispectral and HDR Image and Video Processing	Pavel Zemčík
13:50-14:10	**Invited Speech:** Digitalization of Creation Multi-Satellite Earth Monitoring Systems	Ivan S. Tkachenko
14:10-14:25	YOLO-CD: Drone Video Detection Method Based on YOLOv7 and Kalman Filter in Complex Background	P0093 Wentao Zhou
14:25-14:40	Drone Navigation Based on Deep Q-Network with Prioritised Experience Replay	P0095 Chenghao Ding
14:40-14:55	Visual Detection and Tracking of Quadruped Robot from Quadrotor Using YOLOv8 with SAHI and IBVS	P0105 Fangze Li
14:55-15:10	**BREAK**	
15:10-15:25	Square Cupola AprilTag: A High-Precision Fiducial Marker for Pose Estimation Based on Accuracy Experiments of AprilTag	P0031 Haoran Yang
15:25-15:40	Multi-Scale Feature Coupled Attention Mechanism for Space Object Detection Under Varying Exposure Conditions	P0023 Xuyang Zhang
15:40-15:55	Fault Diagnosis Under Variable Working Conditions Enhanced by Diffusion Models	P0009 Lingkun Luo
15:55-16:10	Hyperspectral and Multispectral Image Fusion Via Non-Local and Global Low Rank Regularization	P0055 Zhouchu Zhang
16:10-16:25	Space Faint Target Extraction and Detection Via Background Noise Modelling with GMM	P0027 Kaiyao Ling
16:25-16:40	Conditional Variational Autoencoder for Remaining Useful Life Prediction with Spatial-Temporal Feature Fusion	P0058 Yuzhe Hao
16:40-16:55	MLMSKT: Mutual Learning and Multi Scale Knowledge Transfer for Aviation Bearing Fault Diagnosis Under Cross-Domain Few-Shot Learning Scenario	P0041 Kong Sun
16:55-17:10	Multi-Objective Optimization of a Boundary Layer Ingesting Fan Based on Deep Transfer Learning	P0037 Hefang Deng

Day 2 Track 2 **Navigation** **10:30-11:50 (GMT+8)** **Location LT4** **Session Chair: Xingqun Zhan**		
10:30-10:50	**Invited Speech:** The Application of Artificial Intelligence in Satellite Navigation	Li-Ta Hsu
10:50-11:05	Hold-in, Pull-in, and Lock-in Ranges for GNSS PLL with Arctangential Detector	P0003 Rong Yang
11:05-11:20	A Visual-Inertial Navigation System (VINS) with Integrity Guided Visual Error Modeling for Aircraft Precision Approach	P0061 Yulong Sun
11:20-11:35	Development of a Satellite Onboard Computer Simulation Platform and Complex Network Generation Based on Renode	P0110 Yi Zhan
11:35-11:50	Beyond Gaussian Assumptions: Toward Trustworthy Navigation in Autonomous Systems	P0085 Penggao Yan
Lunch & Poster Session **12:00-13:00 (GMT+8)** **Location Outside area between LT3 and LT4**		
Day 2 Track 2 **Structure and Safety** **13:30-17:10 (GMT+8)** **Location LT4** **Session Chair: Andreas Hermanutz**		
13:30-13:50	**Invited Speech:** Investigation of Rational Size and Weight of a Second-Generation Supersonic Passenger Aircraft	Dmitry Strelets
13:50-14:10	Optimization Method of the Stiffened Plates with Multi-Level Load-Transfer Structures	P0005 Xin Lian
14:10-14:25	Complex Analysis of the Impact Damage Growth in Composite Element Under Cyclic Compression	P0057 Nikolay O. Kononov
14:25-14:40	Methods for Modeling Fracture in Composite Materials: A Review and Comparative Analysis	P0063 Elizaveta Ryzhova
14:40-14:55	Explicit Stress Intensity Factor Solution for Kinked Crack in Ani-Sotropic Material	P0072 Chennian Shi
14:55-15:10	**BREAK**	

15:10-15:25	Research on Scenario Modeling of Civil Aircrafts Based on DoDAF	P0094 Meng Zhao
15:25-15:40	Research on the Architecture of Distributed Combat Simulation Platform	P0029 Yongqi Lai
15:40-15:55	Approach to the Main Landing Gear Linkage Design for the Requirement of Ultimate Loads on Links During Emergency Landing	P0054 Egor Ivanovich Titov
15:55-16:10	Research Progress on Supercritical Co2 Brayton Cycle System and Compressor for Thermal Protection of Hypersonic Aircraft	P0102 Xinzhe Zhang
16:10-16:25	Do-178c Software Development Lifecycle with Arp4754a System-Level Verification	P0056 Purav Panchal
16:25-16:40	ATC-QA: A Benchmark for Evaluating LLMs on Aviation Safety Compliance	P0113 Hongyu Shi
16:40-16:55	Computational Determination of the Failure Mechanisms of PCM Samples with Adhesive Repair	P0004 Sergei Kovtunov
16:55-17:10	Matrix STL: Concise Temporal Logic Rule for Complex Task Allocation	P0032 Yi Zhang

July 31st, 2025 **Day 3**		
Day 3 Track 1: **Guidance and Control** **9:00-12:00 (GMT+8)** **Location LT3** **Session Chair: Jianzhe Huang**		
09:00-09:20	**Invited Speech:** Low Thrust Trajectory Optimization Near L1 in Cislunar Space	Christopher Damaren
09:20-09:40	**Invited Speech:** UAV Flight Control in the Era of Deep Learning	Hugh Liu
09:40-09:55	Application Method of Dead-Zone Saturation Operation in Nonlinear Control System	P0098 Qiang Shen
09:55-10:10	Reinforcement Learning Based Trajectory Planning for Autonomous Dynamic Soaring	P0100 Alexander Zwenig
10:10-10:25	Distributionally Robust Model Predictive Control of Space Manipulators Based on Koopman Modeling	P0040 Yiheng Yang
10:25-10:30	**BREAK**	

10:30-10:45	Design of A Mission Data Handling Algorithm for A Unified Trajectory Module Based on STANAG 4586 and MAVLink	P0065 Dominik Heimsch
10:45-11:00	Smooth Dubins Path Planning Based on Convolution Parameterization	P0069 Zijian Cheng
11:00-11:15	Quantification of Map Matching Credibility Based on GNSS Positioning Covariance	P0090 Chenzhang Ning
11:15-11:30	Trajectory Planning and Optimisation for Intercepting Evasive Drones	P0070 Javier Hongrui Lee
11:30-11:45	Path Planning and Guidance for Quadruple Legged Robots Through Obstacles Using YOLOv8 and A-Star with ROS2 and IsaacSim Implementation	P0106 Weihua Li
11:45-12:00	Aerial Herding of Flocks of Birds and Interception of Multiple Drone Targets by Distributed Chasers Using StringNet and Heuristic Task Allocations	P112 Panithan Rithburi
Lunch & Poster Session **12:00-13:00 (GMT+8)** **Location Outside area between LT3 and LT4**		
Day 3 Track 1 **Electric Aircraft** **13:30-15:50 (GMT+8)** **Location LT3** **Session Chair: Stephan Myschik**		
13:30-13:45	Design of Power Supply Active Load Allocation Algorithm Based on Aircraft Grid Perception	P0024 Chunxia Yang
13:45-14:00	Scaling and Building a Technology Demonstrator of an Electric Vertical Take-Off and Landing Boxwing Martian Aircraft	P0067 Elena Karpovich
14:00-14:15	Effects of Propeller Rotation Patterns on the Performance of a BWB Configuration eVTOL Aircraft	P0088 Xiaolu Wang
14:15-14:30	Rotor Configuration Optimization for Enhanced Control Authority in eVTOL Aircraft	P0083 Tingyu Huang
14:30-14:45	Requirements-Based Performance Optimisation Tool for Hybrid Electric Aircraft	P0101 Luca Hein
14:45-15:00	Washout Algorithm Design for eVTOL Aircraft Based on the Model Predictive Control Method	P0044 Diming Qin
15:00-15:15	Proportional Multiple-Integral Observer Based Robust Fault-Tolerant Control for Distributed Electric Propulsion Aircraft	P0050 Jun Wei
15:15-15:50	**BREAK**	

Day 3 Track 2 **Propulsion** **9:00-11:30 (GMT+8)** **Location LT4** **Session Chair: Yi Gao**		
09:00-09:15	**Invited Speech:** Advancing Flow Diagnostics with Neuromorphic Vision	Luming Fan
09:15-09:30	Modular Constructive Geometry Parameterization Method for Turbomachinery Blade Design Based on Blade Matching Method	P0117 Qilong Shen
09:30-09:45	Fault Estimation for Aero-Engine Actuator Using Unknown Input Observers	P0099 Huihui Li
09:45-10:00	Numerical Investigation of Flow and Heat Transfer in Turbine Disk Cavity Under Hydrogen-Oxygen Cycle Conditions	P0114 Jie Yang
10:00-10:15	A Methodology for Electrically Propelled Fixed-Wing Aircraft Design Based on the Integration of Design to Cost and RFLP	P0115 Su Liu
10:15-10:30	**BREAK**	
10:30-10:45	The Effects of Air Temperature on the Supersonic Combustion of N-Heptane Dilute Sprays in a Model Combustor	P0014 Chi Zhang
10:45-11:00	Neural Network-Based Online Performance Degradation Prediction of Diesel Engine Turbocharging System	P0092 Xiayu Chen
11:00-11:15	Design of a Turbofan Engine Protection System Against Foreign Object Ingestion	P0038 Sergei Serebriansk
11:15-11:30	Investigation on the Aerodynamic Performance Characteristics of Coaxial Contra-Rotating Propellers under the Influence of Blade Pitch Angles	P0015 Lingyu Gao
Lunch & Poster Session **12:00-13:00 (GMT+8)** **Location Outside area between LT3 and LT4**		
Day 3 Track 2 **Applied Fundamental Technologies** **13:30-15:50 (GMT+8)** **Location LT4** **Session Chair: Wei Ma**		
13:30-13:45	Effects of Microphone Installation Deviations on Localization: A Fundamental Investigation Between Stationary and Rotating Sound	P0052 Cheng Wei Lee

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13:45-14:00	Identifying the Radiating Core and Predicting the Tonal Noise Radiation of An Axial Compressor	P0051 Xiao Jing
14:00-14:15	Multi-Dimensional Evaluation of Chemical Kinetic Mechanisms for Ammonia and Ammonia/Hydrogen Combustion	P0036 Chaowei Ge
14:15-14:30	Design Optimization of Aircraft Hybrid Electric Propulsion System Based on Full-Flight Energy Consumption Calculation	P0087 Peidong Tian
14:30-14:45	Numerical Investigation of Aerodynamic Interference Effects for Wing-Integrated Ducted Fans Using the Momentum Source Method	P0118 Huaxing Gou
14:45-15:00	Evolution of the Instability Characteristics of Wing-Tip Vortex Under the Effect of Synthetic Jet	P0011 Zhenglin Xiao
15:00-15:50	**BREAK**	
Panel Discussion: **EDITOR'S DIALOGUE** **15:50-16:30 (GMT+8)** **Location LT3** **Host: Li-Ta Hsu** **Speakers:** George Zhu, Christopher Damaren, Hugh Liu, Xingqun Zhan, Wu Xu , Haichao Hong, Rong Yang		
Best Poster Award & Best Paper Award & Closing Ceremony **16:30-17:00 (GMT+8)** **Location LT3** **Host and Closing Remarks by: Wu Xu** **Presented by:** Sutthiphong Srigrarom, Lailai Zhu, Andreas Hermanutz, Tat Loon Chng Boo Cheong Khoo, Markus Waechter, Fucheng Liu, Zhongliang Jing, Xingqun Zhan, Wei Mao		
Dinner (for the paid participants and invited guests) **18:30-20:00 (GMT+8)** **Location (TBD)**		

Conference Venue:

July 29th:

Temasek Laboratories
National University of Singapore
T-Lab Building
5A, Engineering Drive 1, #09-02
Singapore 117411

July 30th-31st:

Lecture Theatres 3 and 4, College of Design and Engineering,
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