



Conference website: <https://saeindia.org/initiatives/events/aerocon-2022-2/>

## **LIST OF SUBMISSIONS ABSTRACTS ACCEPTED**

### 1 Paper Abstracts (Written & Oral Presentations)

Below is the list of abstract submissions accepted for full length paper submission. The full length paper needs to be submitted for review by the deadline indicated in conference website. As indicated in the conference website, the length of the paper should be between 6 to 10 pages in length. Papers not in these limits, multiple submissions, and self-plagiarized papers will be rejected without further review. All submitted full-length papers will be subjected to formal peer-review process. Post the peer review process, authors will be notified of acceptance.

The paper template that needs to be used, and detailed instructions can be found at <https://www.sae.org/participate/volunteer/author/event-paper-process> (refer section "2. Submit Your Manuscript"). Once the paper is ready, please convert to PDF format.

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| #         | Paper Title  |
|-----------|--|
| 22AC-0006 | Experimental Setup For Visualization Of Plasma Propelled Thrusters   |
| 22AC-0007 | Optimization And Analysis Of Temperature Distribution In Monel-Copper Joints In Rotary Friction Welding  |
| 22AC-0008 | Design Optimization of Wheel Hub for a Supermileage Prototype Vehicle  |
| 22AC-0010 | Method and Apparatus for Data Processing and Acquiring High Speed Data of Electric Drive System using RS485 and MATLAB Functionality Based Developed Serial Reader Graphical User Interface Tool |
| 22AC-0011 | Truth flow analysis of a subsonic open-circuit wind tunnel using five probe flow analyzer  |
| 22AC-0012 | Use Of Fiber Optics Oxygen Sensor For Aircraft Fuel Tank Inerting Application  |
| 22AC-0013 | Modelling and Simulation of Propulsion System for Hybrid Electric Vehicle in Simulink.   |
| 22AC-0015 | Traceability Verification with respect to DO-178 and AS 9115   |
| 22AC-0016 | Design of Entomopter for Target Killing  |
| 22AC-0017 | Potential Applications of Fuel Cells in Air Mobility   |

| #         | Paper Title   |
|-----------|---|
| 22AC-0019 | "Development of Autonomous Solar powered RC Aircraft"   |
| 22AC-0020 | Simulation Of Air Conditioning System For Thermal Comfort Using Machine Learning techniques   |
| 22AC-0021 | Integration of Smart Sensors in more Electric Aircraft  |
| 22AC-0022 | Investigation of the effectiveness of plasma actuators at various chord positions of an airfoil for flow separation control   |
| 22AC-0023 | Digital Manufacturing Execution System for Special Processes  |
| 22AC-0024 | Optical Black Coatings On Carbon Fiber Reinforced Composite Sandwich Structure With Aluminum Honeycomb Core For Satellites Applications.                                      |
| 22AC-0025 | Comparing eVTOL Aircraft Configurations for Varying Payloads and Range  |
| 22AC-0026 | Vision-Based Collision free technique for Autonomous Navigation of MAV in GPS-denied Environments   |
| 22AC-0027 | Next-Gen Maintenance Framework for Urban Air Mobility Vehicles  |
| 22AC-0028 | Use Of AI Based Visual Inspection For Aerospace Parts Inspection And Manufacturing Application  |
| 22AC-0029 | An Effective Design of Micro Tesla Valve as a Passive Mixer in Microfluidics Channels   |
| 22AC-0030 | A hybrid sensor-fusion system to locate the Electric gridlines by UAV for range extension in Urban areas  |
| 22AC-0031 | OS Independent Tool Qualification in Safety Critical Systems  |
| 22AC-0032 | Model Based System Safety Analysis for the Actuator Control System (ACS)  |
| 22AC-0033 | Energy Scavenging from Passengers for Powering Low-energy Electronics in Aircrafts  |
| 22AC-0035 | Modeling and Simulation - Solution for the Delayed Hardware   |
| 22AC-0036 | Integrated Vehicle Health management(IVHM):Prognosis and diagnosis system   |
| 22AC-0037 | Tuning of blade natural frequencies outside high excitation region by using Ceramic Particle Reinforced Composite Materials for a typical Gas Turbine Engine Compressor Blade |
| 22AC-0039 | Numerical Simulation and Experimental Studies on Weapon Safe Separation for a High Speed Aircraft   |
| 22AC-0040 | Integrating derived safety requirements into the system design  |
| 22AC-0041 | SRGAN-TQT, an Improved Motion Tracking Technique for UAVs with Super-Resolution Generative Adversarial Network (SRGAN) and Temporal Quad-Tree (TQT)                           |
| 22AC-0042 | Design For Testability and its importance in Avionics Software Development  |
| 22AC-0044 | Design and Numerical Analysis of Energy Production through PVEH patches on Fuselage and Wing of Advanced Ornithopter UAV  |
| 22AC-0046 | Design and Computational Investigations of Aerobot for Titan with maneuverability using momentum wheel and propeller equipped with droppable weather stations                 |
| 22AC-0047 | Design and Parametric Investigations on Various Propellers for Nature Inspired Unmanned Amphibious Vehicle  |
| 22AC-0049 | Connected Iggs With Real Time Data Access & AI-ML Approach For Predictive-Prognostics Maintenance   |
| 22AC-0050 | To Develop the model for heat transfer coefficient with Machine Learning Techniques.  |
| 22AC-0051 | Development of zero leak metal-to-metal seal for PRV through experimental evaluations   |
| 22AC-0053 | Alternative fuels for CI engine and recent developments: A review   |
| 22AC-0054 | Overcome Certification Challenges of AI/ML based Airborne Systems Using FAA Overarching Properties  |
| 22AC-0055 | Approaches for AI/ML Based Airborne Systems Compliance  |
| 22AC-0056 | Certification Aspects of Explainable Artificial Intelligence in Aerospace   |

| #         | Paper Title   |
|-----------|---|
| 22AC-0059 | Conceptual Design and Comprehensive Computational Analyses of Energy Extractor on Empennage of Fixed Wing UAV               |
| 22AC-0060 | Design for Internet of Things in Aerospace  |
| 22AC-0061 | FE Modelling and Experimental evaluation for the surface integrity of thin walled aluminum alloy                            |
| 22AC-0064 | Cloud based Architecture to implement Digital Twins   |
| 22AC-0068 | Characterization of clearances and its optimization for vibration control of linear hydraulic Actuators                     |
| 22AC-0069 | Analytical Modelling of Nozzle Flapper Servo Valve to predict Hysteresis  |
| 22AC-0070 | Artificial Intelligence Enabled Model for Real Time Prediction of Aircraft Touch-Down Point                                 |
| 22AC-0072 | Modeling nonlinearities and predicting contact nonlinearity behavior in vibration problems using FE analysis                |
| 22AC-0073 | Methodology for performing submodel analysis for random vibration problems using modal analysis results                     |
| 22AC-0077 | Computational aero-acoustic noise prediction and mitigation in a strut-head geometry  |
| 22AC-0078 | A comparative study between Flax-Fiber Reinforced Polymer and Balsa wood for Aero-structure applications.                   |
| 22AC-0079 | Additive Manufacturing of Threaded Parts for Aerospace applications   |
| 22AC-0080 | A Computational performance study on cheaper fuels for Micro Jet Engine as Jet A1 replacement without performance penalties |
| 22AC-0082 | Effect of Varying Diffuser vane height on CC3 NASA 4:1 Centrifugal Stage Performance  |
| 22AC-0083 | Using Digital Twin for faster & accurate performance prediction of Industrial Assets.                                       |
| 22AC-0084 | Dynamic Modeling of Self a Regulating Valve   |
| 22AC-0087 | Control Amenable Modelling and Characterization of an Autonomous High-Power Rocket with Movable Fins                        |
| 22AC-0088 | Aerospace Digital Design and Manufacturing Services- DDMS   |
| 22AC-0089 | SMART Manufacturing with Augmented Reality  |
| 22AC-0090 | Non-parametric Optimization of Heat Sinks for Power Dense Motor Controllers   |
| 22AC-0091 | AI Based Remote Testing   |
| 22AC-0092 | The role of Additive Manufacturing in the era of Industry 4.0   |
| 22AC-0093 | Novel study on Elastic recuperation of Titanium (grade 5) alloy during machining  |
| 22AC-0094 | Utilization of ternary blends of diesel, bioethanol, and waste cooking oil biodiesel in diesel engine                       |
| 22AC-0095 | IOT based data acquisition and Machine Learning techniques for prognostics and health management of Aircraft Systems        |
| 22AC-0096 | AI deep learning-based bird detection for UAM and aircraft  |
| 22AC-0098 | Model Based Design (MBD): An Engineering approach for system design   |
| 22AC-0099 | Requirements to code review bot for safety critical software  |
| 22AC-0100 | Predicting Aircraft Time of Arrival using ADS-B Data  |
| 22AC-0101 | Portable streaming solution   |
| 22AC-0104 | An Autonomous Ground Based Multi Sensor Data Fused TDR Prediction and Monitoring System                                     |
| 22AC-0106 | An Approach to Implement Prognostics and Health Management in the Aerospace Industry  |
| 22AC-0107 | Method for Performing Indirect Lightning Test Simulation  |
| 22AC-0108 | Rapid Urban Database Generator  |
| 22AC-0110 | Reliability Apportionment Using Qualify Function Deployment   |

| #         | Paper Title   |
|-----------|---|
| 22AC-0111 | Challenges with Commercial Supersonic Travel and some resolutions   |
| 22AC-0112 | Concept of Morphology in UAV Design   |
| 22AC-0113 | Case Review: Hybrid, and electric vehicle users in India  |
| 22AC-0115 | Medicinal Delivery Operation using blockchain enabled Unmanned Aircraft Systems   |
| 22AC-0116 | An approach to designing Hybrid Electric System for Aircraft  |
| 22AC-0117 | Mathematical Modeling & Simulation of Thermal Heat Load for Cabin & Cockpit of Aerial Vehicle   |
| 22AC-0118 | Design of a thermal energy storage panel for reducing the temperature fluctuations in a CubeSat or a NanoSat using a passive thermal cooling system.                                |
| 22AC-0120 | Bird strike analysis on nanocomposite materials for aerospace applications  |
| 22AC-0121 | Mixed Reality (MR) based remote assistance for disposition of aircraft manufacturing Non-conformance (NC) or In-service Aircraft Damage during Covid or Post Covid work Environment |
| 22AC-0122 | Orange peel oil effect on performance and emission of diesel engine fuelled with diesel-waste plastic oil blends  |
| 22AC-0123 | Autonomous UAV solution for ecological mapping and surveillance.  |
| 22AC-0124 | Passenger To Freighter Conversion And Its Impact On The Environmental Control System  |
| 22AC-0126 | Automation of Aviation Weather Charts using Machine Learning Techniques   |
| 22AC-0127 | Resilient navigation platform to enabling secure & safe BVLOS navigation UAS operations   |
| 22AC-0129 | Development of Autonomous airborne systems  |
| 22AC-0133 | PHM system with comprehensive data analytics to provide localized reasoning for a failure prediction  |
| 22AC-0135 | Numerical Drag and Lift Predictions of Transport Aircrafts  |
| 22AC-0136 | Hypersonic Bi directional Blended Wing Body UAV Conceptual Development.   |
| 22AC-0138 | A comparison of autonomy in Urban Land Mobility and Urban Air Mobility  |
| 22AC-0139 | Operating the Navigation Database Server from Ground Station  |
| 22AC-0140 | Space Debris - New Engineering And Business Frontiers   |
| 22AC-0141 | Murraya koenigii based nano-drone deployment for Titan exploration  |
| 22AC-0144 | Temperature Estimation Of Electric Motors Of Electric Actuators   |
| 22AC-0145 | Hydrogen Fueled Aircraft Engines  |
| 22AC-0146 | Enhanced ADS-B – A futuristic approach to Free Flight   |
| 22AC-0147 | Systematic Intelligent Mechanism of Aircraft Assembly Process Knowledge Management for Aviation Enterprise  |
| 22AC-0148 | Aerodynamic drag reduction in automobiles by dimples arrangement  |
| 22AC-0149 | Research on the Performance of Composite Cantilever Beam Under Special Environmental Condition  |
| 22AC-0150 | Improvement of Aircraft Assembly Accuracy Based on Expert Knowledge   |
| 22AC-0151 | Next-gen swarm CubeSats' synchronization and re-programmability   |
| 22AC-0152 | Nuclear powered air-breathing electric thrusters used in UAV for extra-terrestrial applications   |
| 22AC-0153 | A Framework for Teaching Safety Critical Control and Artificially Intelligent Systems to Undergrads   |
| 22AC-0154 | Teaching Aerospace Software Quality at an Undergrad Level in the Pandemic – Experiences   |
| 22AC-0155 | 3D Welding Additive Manufacturing Humanoid for Spacecraft   |
| 22AC-0158 | Design and Simulation of Isolated AC-DC Flyback Conversion System for High Energy Ignition Unit of Gas Turbine Engine   |

| #         | Paper Title  |
|-----------|--|
| 22AC-0159 | Experiences in Anomaly Prediction Models for Aircraft Effective Flight Path Monitoring Through Trajectory Based Operations |
| 22AC-0162 | Blockchain Enabled Sustainability in Industry 4.0 for Aerospace domain   |
| 22AC-0163 | Blockchain based Aircraft Maintenance Records  |
| 22AC-0164 | Best Practices to Prevent, Mitigate and Respond to Cyber Attacks on Air Traffic Management Systems                         |
| 22AC-0165 | A vertically reusable Testbench development guidelines and anonymous heroes of the ASIC/FPGA design verification process.  |
| 22AC-0166 | Forging a cost-effective way of verifying devices with Analog inputs in UVM based environment                              |
| 22AC-0168 | Addressing Noise And Vibration In Electrical Machines  |
| 22AC-0169 | Doing Verification Better! If VHDL is so good, why do we need UVM?   |
| 22AC-0170 | Analysis of Aerodynamic Composites & Advanced Materials Using Modeling & Simulation for Blended/Hybrid Wing Body Designs   |
| 22AC-0171 | Artificial Intelligence in Air Cargo System  |
| 22AC-0172 | Gamification in Aerospace Development  |
| 22AC-0173 | Area coverage using drones for Precision Agriculture   |
| 22AC-0174 | Design, Simulation and Topology Optimization of Rotor Disc   |

## 2 Presentation Abstracts (Oral Only Presentations)

Below is the list of abstract submissions accepted for oral only presentations. Authors are requested to submit the full length presentation for review per the instructions and deadline indicated in the conference website. Please refer <https://www.sae.org/participate/volunteer/presenter-resources> for guidelines and templates. Authors are requested to note that oral only Presentations are not subject to the formal peer-review processes and will NOT be included in the conference proceedings. If the authors intended to submit a paper (written+oral), please contact the conference organizers immediately at the email/phone given in the conference website.

| #         | Presentation Title  |
|-----------|---|
| 22AC-0004 | Airframe Maintenance Modernization - The Hanger of the Future   |
| 22AC-0009 | Modeling and Analysis Of Climbing Robot For Uneven Natural Terrain Using MATLAB & Robo Analyzer To Validate Kinematic Analysis. |
| 22AC-0018 | Robust Design of Aero Engine Installation Components  |
| 22AC-0038 | Safety Encounters in Urban Air Mobility or Unmanned Aircraft  |
| 22AC-0057 | Overview of Primary and Secondary Flight Control Systems  |
| 22AC-0058 | Adoption of AM technology in the Aerospace Industry   |
| 22AC-0067 | Quality Inspection using Artificial Intelligence  |
| 22AC-0097 | System of Systems Modelling to empower decision makers in drone based services - an application in Agriculture                  |
| 22AC-0119 | The effect of compliant mechanism on the aerodynamic design parameters of an aircraft.  |
| 22AC-0134 | Vibration frequency of cantilever beam using Harris corner detection method   |
| 22AC-0167 | Optimization of Bolted Flange Design through Parametric Studies using Multi-Disciplinary Analyses                               |