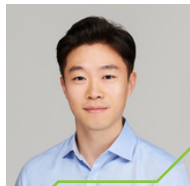


# Electric Vertical Takeoff and Landing (eVTOL) Aircraft

## SPEAKERS



**Chris Mi**  
*Distinguished Professor*



**John Hwang**  
*Assistant Professor*

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## About Us:

ITEC is aimed at helping the industry in the transition from conventional vehicles to advanced electrified vehicles. The conference is focused on components, systems, standards, and grid interface technologies, related to efficient power conversion for all types of electrified transportation, including electric vehicles, hybrid electric vehicles, and plug-in hybrid electric vehicles (EVs, HEVs, and PHEVs) as well as heavy-duty, rail, and off-road vehicles and airplanes and ships.

## Contact Us:

<https://itec-conf.com/>  
[info@itec-conf.com](mailto:info@itec-conf.com)

## SUMMARY

The aviation industry accounts for 9% of greenhouse gas emissions (GHGs) from the U.S. transportation sector. To address these GHG emissions, NASA's Subsonic Fixed Wing program has set performance targets at -55dB noise at the airport boundary, -75% NO<sub>x</sub>, and -70% fuel burn relative to 2006-era technology.

## ABSTRACT

The aviation industry accounts for 9% of greenhouse gas emissions (GHGs) from the U.S. transportation sector. To address these GHG emissions, NASA's Subsonic Fixed Wing program has set performance targets at -55dB noise at the airport boundary, -75% NO<sub>x</sub>, and -70% fuel burn relative to 2006-era technology. Electric aircraft could be the most viable solution to achieve these goals. In addition, electric aircraft can reduce operating costs by using electricity instead of jet fuel and reducing overall energy consumption. However, adopting electric propulsion for the long-haul and large-capacity aircraft is not realistic in the near term due to multiple reasons, such as weight, cost, and charging times of the battery.

Hence, a more practical entry point for introducing electric propulsion in aviation is on electric vertical takeoff and landing (eVTOL) aircraft. eVTOL aircraft provide many advantages when compared to traditional short-haul aircraft and helicopters since they do not require a runway, and they can be quiet, efficient, and emission-free. Hence, eVTOL aircraft can be ideal for urban transportation, emergency medical services, and many other applications. This tutorial will cover the fundamentals of eVTOL aircraft, including the principles of aircraft design, sizing, configurations, basic aerodynamics, electric propulsion system, energy storage and its management, and multidisciplinary design optimization.

