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Efficient Noise Measurement in Wind Tunnels with the Acoustic Camera

With its Acoustic Camera, gfai tech GmbH offers a highly precise solution for visualizing flow noise in wind tunnels. Thanks to state-of-the-art microphone array technology and the NoiseImage software, noise sources can be visualized in real-time as accurate acoustic maps. Especially in industries such as aerospace, automotive, and research, our Acoustic Camera enables efficient analysis of flow noise under realistic driving and flight conditions.

A practical example demonstrates how companies utilize wind tunnels for their development processes: At the Shanghai Automotive Wind Tunnel Center of Tongji University, vehicle components are tested for aerodynamically induced noise. Flow noise on side mirrors, roof rails, or radiator grilles is precisely examined at speeds of up to 250 km/h. These noises not only affect driving comfort but also impact vehicle energy efficiency and environmental sustainability. The Acoustic Camera visualizes the noise sources precisely as color-coded acoustic maps in 2D or 3D. This real-time representation allows engineers and designers to efficiently identify sources and take targeted measures to reduce noise.

The Evo AC Pro, gfai tech's largest Acoustic Camera, offers an outstanding solution for precise sound measurements in wind tunnels. With 96 to 168 microphone channels, it provides exceptionally high resolution and detail accuracy. It effectively handles complex challenges such as varying wind tunnel sizes, fluctuating wind speeds, or specific shear layer dynamics—the behavior of airflow as it passes solid objects and generates turbulence.

For the Tongji wind tunnel, the measurement system was individually customized—from hardware to software. A tailor-made system is the only way to guarantee the highest level of accuracy and efficiency. Learn more about how the Evo AC Pro was developed in our Berlin office and how it is used in Tongji University's wind tunnel here.

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About gfai tech

gfai tech GmbH is a German company specializing in innovative sound and vibration measurement and analysis solutions. We offer advanced Acoustic Cameras, comprehensive analysis software, and cutting-edge structural dynamics solutions. Our expertise spans various industries, helping customers achieve noise reduction, false detection, sound design improvement, and precise vibration monitoring. As a subsidiary of GFaI e.V., we provide unique hardware, software, and customized customer solutions backed by global support.

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High resolution images can be provided upon request.