



DLR INSTITUTE OF FLIGHT GUIDANCE

At a glance

Institute of Flight Guidance

The DLR Institute of Flight Guidance develops new concepts for a safe, efficient, environmentally friendly and reliable air transport system.

Air traffic plays a crucial role in ensuring the mobility of people and goods around the globe. Environmental impact and resistance to disruptions must be balanced with sufficient capacity in the air and on the ground. Decisive steps towards achieving this are a more efficient air traffic management and the optimisation of airport processes.

The Institute of Flight Guidance addresses the complex interplay of air transport by means of a broad range of focus areas throughout its specialised departments. The departments work together on new support functions for the on-board and ground operations, researching whole-system approaches to the optimisation of comprehensive processes at airports, developing new air traffic management procedures and concepts, and evaluating their effects. Special attention is paid to the changing role of the human operator and new entrants such as unmanned aircraft systems.

Full automation in aviation – this long-term vision guides the work of the Institute of Flight Guidance. In this way, the Institute’s research focusses on the three key areas “Air Traffic Management”, “New Mobility” and “Airport Management”, thereby always taking into account both social challenges and boundary conditions. The research is complemented by a unique experimental infrastructure.

The Institute uses interdisciplinary research teams and an integrated test infrastructure to conduct basic and applied research, starting with the idea through to application. The staff regularly cooperate with partners from universities, other research institutions and industry on German and international research projects. Moreover, the Institute supports young scientists by holding lectures at different universities and mentoring PhD researchers and students at the Institute.



HMI Lab



Air Traffic Management and Operations Simulator (ATMOS)



Modular fixed-base cockpit simulator GECCO



Airport and Control Center Simulator (ACCES)



360° Apron and Tower Simulator (ATS)



Tower Lab



ISTAR Dassault Falcon 2000LX

Air Traffic Validation Center

For several decades, the Institute has been developing facilities for the validation of concepts, technologies and procedures in air traffic management. Together, these facilities form the “Air Traffic Validation Center” and are unique in Europe. The Validation Center includes interconnected:

- Fast-time simulators
- Apron and tower simulators
- Airport and control-centre simulators
- Cockpit simulators
- Drones and UAS ground-control stations
- Flight-testing equipment
- Satellite-based precision landing systems
- Wide Area Multilateration Systems

The Validation Center provides scientists and research partners with the right tools for testing and evaluating new ideas and technologies for all areas of air traffic management. At the same time, it also allows each development step to be continuously reviewed – from the initial idea up to the testing of prototypes and their implementation under realistic conditions.

Key data	
Location	DLR site Braunschweig, Germany
Director	Prof. Dr.-Ing. D. Kügler
Employees	160
Web	DLR.de/FL



UAS Lab

DLR at a glance

DLR is the Federal Republic of Germany's research centre for aeronautics and space. We conduct research and development activities in the fields of aeronautics, space, energy, transport, security and digitalisation. The German Space Agency at DLR plans and implements the national space programme on behalf of the federal government. Two DLR project management agencies oversee funding programmes and support knowledge transfer.

Climate, mobility and technology are changing globally. DLR uses the expertise of its 55 research institutes and facilities to develop solutions to these challenges. Our 10,000 employees share a mission – to explore Earth and space and develop technologies for a sustainable future. In doing so, DLR contributes to strengthening Germany's position as a prime location for research and industry.

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German Aerospace Center



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