

**ABA** INVEST  
WORK  
FILM  
Your easy access to Austria

# Autonomous Driving and Flying

Research Location Austria.  
Where innovation moves mountains.



# Autonomous Driving and Flying »Made in Austria«

The location for your research centre  
The environment for your success

Your project will pick up speed in Austria. Get a little taste of what is going on with this small selection of companies, educational institutions and research centres which you will find in this country.

## Universities and educational facilities

FH Campus Wien, Vienna Institute for Safety and Systems Engineering (VISSE)  
FH Joanneum, Institute of Aviation  
FH Oberösterreich, Automotive Computing  
FH Oberösterreich, Automotive Mechatronics and Management  
JKU Linz, Institute for Machine Learning  
Linz Institute of Technology  
TU Graz, Institute of Automation and Control  
TU Wien, Institute of Computer Engineering

## Companies

Andata  
AT&S  
AVL List  
BMW Motoren  
Bosch Mobility Solutions  
CISC  
Easelink  
Frauscher Thermal Motors  
Infineon  
Kapsch TrafficCom  
Kreisel Electric  
Magna  
NXP  
Porsche Informatik  
Siemens Mobility Solutions  
TTTech Auto  
ZKW Group

## Startups

Blackshark.ai  
EVOLVE  
EYYES  
Kontrol

## Research centres

Airlab Austria  
Austrian Institute of Technology  
Vienna Institute for Safety and Systems Engineering (VISSE)  
Institute of Advanced Research in AI (IARAI)  
Linz Institute of Technology  
Joanneum Research  
Know Center  
Lakeside Science and Technology Park  
Softwarepark Hagenberg  
future.lab (TU Wien)  
Virtual Vehicle Research

## Test regions

### Automobiles

Alp.Lab  
Digitrans

### Drones

Airlabs Austria  
Lakeside Science and Technology Park - Drone Hall

### Railways

Open Test Track Lab

### Networks and platforms

A2LT - Austrian Advanced Lightweight Technology  
AC Styria  
Austria Tech  
Automobil Cluster  
Competence center for automotive and industry electronics (KAI)  
IAMTS  
Roadmap 2050  
Silicon Alps  
Software Internet Cluster  
The Autonomous

# The Talent Cluster

Large pool of experts

A broad range of degree programmes and professional training

Thanks to attractive conditions and research funding, Austria sets the pace when it comes to autonomous driving and flying. Leading companies such as Amazon, Infineon, Intel, Siemens and Bosch have confidence in Austrian research.

1,000,000,000 euros were invested in automotive R&D in 2020

3.26% of GDP is devoted to R&D

3<sup>rd</sup> in all of Europe

Austria is a country of education – far ahead in all European rankings and unbeatable due to its combination of school-based learning and practical training. Close to 20,000 young people are studying IT at the present time.

## Universities and research institutions

### FH Joanneum – University of Applied Sciences

- Automotive Engineering
- Aviation

### Johannes Kepler University Linz

- Artificial Intelligence
- Autonomous Systems

### Graz University of Technology

- Automation and Control
- Automotive Engineering

### University of Klagenfurt – Faculty of Technical Sciences

- Networked and Autonomous Systems
- Smart Systems Technologies

### Vienna University of Technology

- Visual Computing
- Automotive Industry



## We need a little fun:

The Roborace is an international competition for autonomous driving. The Graz University of Technology and Virtual Vehicle have their own racing team which they send to take part.

# The Ecosystem

Companies and startups as cooperation partners  
Research centres as the catalyst for your development

## Companies

### TTTechAuto

The global player for highly automated driving

A spin-off of the Vienna University of Technology has evolved into a high-tech champion: TTTech Auto has grabbed the international pole position for self-driving vehicles and reliable safety solutions on the basis of its "MotionWise" software. Investors such as Samsung, Infineon and GE Ventures are further enhancing corporate growth. Partnerships with SAIC, the largest Chinese automobile manufacturer, provide the Austrian company with the required, wide-ranging impact.

An ingenious move: the founding of "The Autonomous" by TTTech Auto has created a global community of more than 1,500 experts from all fields of industry. Their shared objective is to develop the best system architecture for self-driving vehicles.

### BOSCH

Research and development in Austria

Bosch is increasingly playing a leading role in mobility solutions. Approx. 1,100 employees in Austria are conducting research in Vienna, Linz and Hallein to develop mobility solutions. Moreover, Bosch also operates a developmental centre in Vienna focusing on the "Internet of Things."

### AVL

The world's largest private company for drive systems of the future

Autonomous driving will shape the future of mobility. We're not quite there yet at the present time but we are well on our way. AVL List specialises in driver assistance systems such as lane keeping, parking and braking assistance. The company is a research leader in fully automated driving solutions. For this purpose, AVL has entered into a partnership, for example, with the American firm MSC Software.

## Startups



Same computing power but 90% less energy consumption

EYES, a Krems-based startup for sensor technologies, is in the fast lane for autonomous driving. Thanks to both national and international funding, the journey for the specialists in intelligent object recognition, AI and deep learning has just begun. The developments are impressive: in a direct computing power comparison with Tesla, the software from Krems uses 90% less energy.



A real artificial world for testing and training

Specialising in digital twins, blackshark.ai headquartered in Graz reconstructs a photorealistic 3D world from satellite imagery, point clouds, aerial and street imagery. In turn, this enormously advances the training and testing of autonomous driving because test routes never encompass all potential scenarios. blackshark.ai cooperates with NVIDIA.

### kontrol

Full speed ahead towards the approval of self-driving cars

The compliance software "KoPilot" developed by Kontrol transforms traffic regulations into a predictable code, thus serving as a kind of driving license for self-driving cars. At the same time, it also checks compliance with valid rules applying to road traffic. Accordingly, the startup from Upper Austria is a major driver for the official authorisation of autonomous vehicles.

## Research centres

### virtual vehicle

Innovation catalyst for vehicle technologies of the future  
300 in-house experts at Europe's largest research centre for virtual vehicle development work together with 30 national and 50 international industrial partners such as Audi, AVL, Siemens and VW. Virtual Vehicle also cooperates with close to 50 national/international scientific institutions to shape vehicle technologies of the future. Here both theoretical and practical competencies come together.



Audi.JKU deep learning center in Linz

The basic research on deep learning and the "Long Short-Term Memory" technology conducted by the AI pioneer Sepp Hochreiter has paved the way for self-learning machines. Sepp Hochreiter is cooperating with Audi on research into artificial intelligence in automobiles at the Audi.JKU Deep Learning Center.



"Tomorrow today" for Austria's economy

The Austrian Institute of Technology (AIT), the country's largest organisation for research and technology, is partnering with well-known manufacturers of assistance and autonomous systems. With 1,400 employees, AIT is Austria's "control centre" for research at the interface of science and industry.



# The Test Regions

Extensive testing possibilities for your prototypes and algorithms  
What you need to know about it



### Data and testing service

Organisations and research institutions have been testing automated vehicles in Austria since 2016. This is particularly the case in the federal province of Styria, which offers Europe's most diverse testing areas for autonomous driving on public and private test tracks. ALP.Lab offers a continuous digital test chain in a comprehensive simulation environment for urban and rural settings as well as highways.

- Access to a fully developed testing tunnel which is unique in Europe
- Equipment, preparatory work and evaluation, software and sensor validation
- Up-to-date traffic sign database on selected routes



### The testing environment for commercial and transport vehicles

Digitrans provides the know-how and test infrastructure for research, testing, validation and implementation. Three public test areas and one closed test track reproduce various scenarios, from asphalt to offroad. Future highlights of the area covering 40 hectares include an outdoor sprinkler and lighting system, 5G and C-ITS infrastructure, a hub zone for lorries and transport vehicles as well as scenarios in city traffic zones.



### Autonomous flying – from Austria to the world

With an area of 150 square metres (and a height of ten metres), the Lakeside Science & Technology Park in Klagenfurt is one of the largest drone halls for research and test applications. Major international players such as Amazon and the Chinese drone manufacturer Ehang are already developing their autonomous drones in Austria.



### Testing infrastructure for unpiloted aerial systems

AIRlabs Austria bundles the competencies of 25 organisations representing Austrian business and research. Unpiloted aerial systems with different technologies and innovation maturity levels are subject to testing here. This encompasses engineering and simulation, the climactic wind tunnel and icing channel, indoor flight facilities, various air spaces and critical infrastructures.



### Mobility Testing and Standardization

IAMTS - International Alliance for Mobility Testing and Standardization: Global association of organizations headquartered in Vienna involved in the testing, standardization and certification of advanced mobility systems and services with the aim to set common standards.



### Legal information and test licenses for autonomous driving

In its capacity as the national contact point for automated mobility, AustriaTech makes decisions on granting test licenses for automated vehicles on Austria's public roads.

After a positive ruling by the panel of experts, the responsible federal ministry issues a certificate permitting testing on public roads.

#### Who can submit a testing application?

- Vehicle manufacturers
- Systems developers
- Research facilities
- Transport companies
- Bus service operators
- goods transportation companies
- road maintenance companies
- operators of parking garages and parking

#### What can be tested?

- Automated minibus
- Automated valet parking
- Automated vehicle for transport of passenger
- Automated vehicle for the transport of goods
- Automated working machine
- Autonomous military vehicle
- Motorway pilot with automated lane change
- Motorway pilot with automated driving on ramps and exits

# What ABA does for you

We inform and advise you before you come to Austria, support you on your way here and also remain at your side even after project completion.

### ABA informs

Data, facts, trends on Austria as a business, work and film location  
Legal and tax framework

### ABA researches

Potential cooperation and research partners  
Individual packages based on funding programmes

### ABA supports

Site inspections  
Relocation

### ABA advises on

Expansion investments  
Clearing house for residence visas and the Red-White-Red Card





Your easy access to Austria

## INVEST in AUSTRIA

We are there to provide help and support when foreign companies want to set up business operations in Austria or expand existing facilities.

## WORK in AUSTRIA

Austrian companies offer many attractive jobs for skilled workers from abroad. We are the advisory centre for both sides.

## FILM in AUSTRIA

Tom Cruise climbs down a rope from the Vienna State Opera and James Bond flies across Tyrol. We work "behind the scenes" so that the world sees these images.

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