

Artificial Intelligence & Big Data meet our community

We invite you to meet our community and discover our success story!

Brabant is home to all necessary ingredients for AI companies to flourish. The region is one of the most important innovation clusters in Europe for AI and Data Technologies. Next to that, the region boasts a large amount of technical IT students and the rich history of innovation initiated by Philips resulted in top notch technical knowledge and capabilities that are needed for AI.

The open innovation network in which top universities and world class research institutes work closely together boost the application of AI solutions. All industries are fully committed to using the added value of data and AI technologies in order to be ready for the future and international competition. The Brabant companies are known for quickly adopting new developments and innovations and applying them in their processes.

AI & Big Data in Brabant

HISTORY

Innovation is in the DNA of the Brabant region. The region has a rich history of technical innovation. It is therefore no surprise that **the region is one of the key locations in Europe for AI and Data Science developments.**

Brabant is home to many of the companies and research institutions that are at the forefront of the development of AI and data technologies. This is because, for years, Brabant invests in the development and application of AI. The opportunities in Brabant are vast. The AI & Data Technologies are slowly becoming part of our everyday lives and we see it touching many parts of industry in Brabant; from manufacturing to logistics, field service to customer delivery. Inspection, picking, and autonomous navigation are just a few areas where we see great, real-world applications and many more opportunities. The main application areas in the Brabant region for AI and Data are in the following industries:



HEALTH



INDUSTRY



MOBILITY

ASML

PHILIPS

SAP

SIEMENS

AtoS

IBM

NXP

DASSAULT
SYSTEMES

ThermoFisher
SCIENTIFIC

PRODRIVE
TECHNOLOGIES

simac

here

Why Brabant excels in AI & Big Data?

TALENT IT, AI AND BIG DATA



The Brabant region is the chief supplier in the Netherlands of highly educated IT talent. The region also has the steadiest rise in the graduates at all IT related education levels in the Netherlands. AI & Data talent is present with knowledge of the whole technical spectrum.

HIGHLY-DEVELOPED CLUSTERS AND CAMPUSES



What sets Brabant apart are the various **innovation clusters and field labs** around specific themes. These public-private testing grounds are hotspots for co-creation and speed up innovation.

TOP RESEARCH



Brabant is home to highly specialized research institutes such as the **Eindhoven Artificial Intelligence Systems Institute**. Within the institutes you will find more than 1000 researchers that are specialized in AI & Data.

INDUSTRY BASED ECOSYSTEM WITH LEADING AI COMPANIES



All industries are fully committed to using data and AI technologies. Within the Brabant region, more than **500 organizations develop and apply AI solutions**. Examples of these organizations are: ASML, Philips, Atos, Dassault Systems, Altran Engineering, TMC and Siemens Industry Software.

AI-hub

Regional network for AI in the whole region to strengthen and connect activities around Artificial Intelligence (AI):

The AI-hub encompasses the AI ecosystem in Brabant. The AI-hub brings companies, education and knowledge institutes, and public organizations in the province of Brabant together to strengthen and connect activities revolving around artificial intelligence (AI).

The goal is to extend the existing partnerships in the field of AI and the cross-over with (professional) education, societal challenges and joint support for start-ups, scale-ups and SMEs. The AI-hub Brainport is part of the national AI program developed by the Dutch AI Coalition (NL AIC).



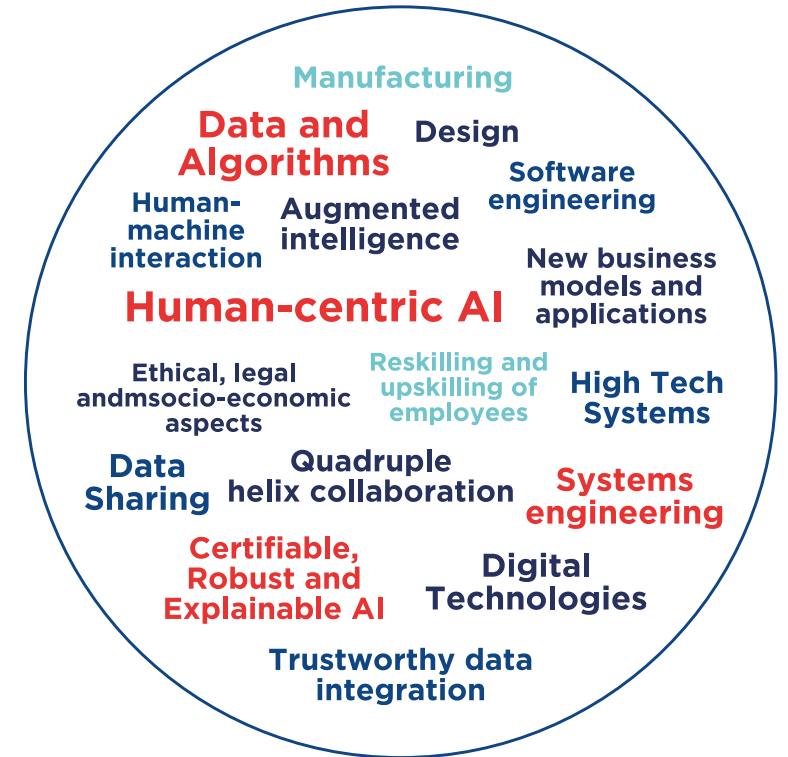
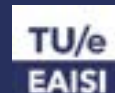
FOCUS AREA'S

- Industry
- Mobility
- Medtech



PARTNERS

Part of the hub are industry, educational and governmental partners and campuses:



Our Ecosystem

World Class Research

Within a radius of 150 km around Brabant, there are 27 universities in three countries: a total of 605,340 students, 255,680 of which in the field of nature, health or technology. These are the leading research institutes for IT & Data Science technologies.



WORLD CLASS AI & DATA SCIENCE RESEARCH AT UNIVERSITIES

1. **The Jheronimus Academy of Data Science (JADS)** is a unique concept in the Netherlands, which allows graduates to study, research and apply data Science.
2. **Eindhoven University of Technology (TU/e)** is a research university specializing in engineering science & technology.
3. **The Tilburg University** is a research university that combines expertise in AI with expertise in people and society. Specialization is in Fundamental AI.
4. **Fontys University of Applied Sciences** focusses on practice-oriented research to solve a wide range of issues and to accelerate the digital transition in Brabant with AI & Data Science.
5. **Breda University of Applied Sciences** is one of the world's best gaming schools. In addition, the university focusses on practice-oriented research for AI and Data science.

Our Ecosystem

World Class Research

Within a radius of 150 km around Brabant, there are 27 universities in three countries: a total of 605,340 students, 255,680 of which in the field of nature, health or technology. These are the leading research institutes for IT & Data Science technologies.



Tilburg



Eindhoven

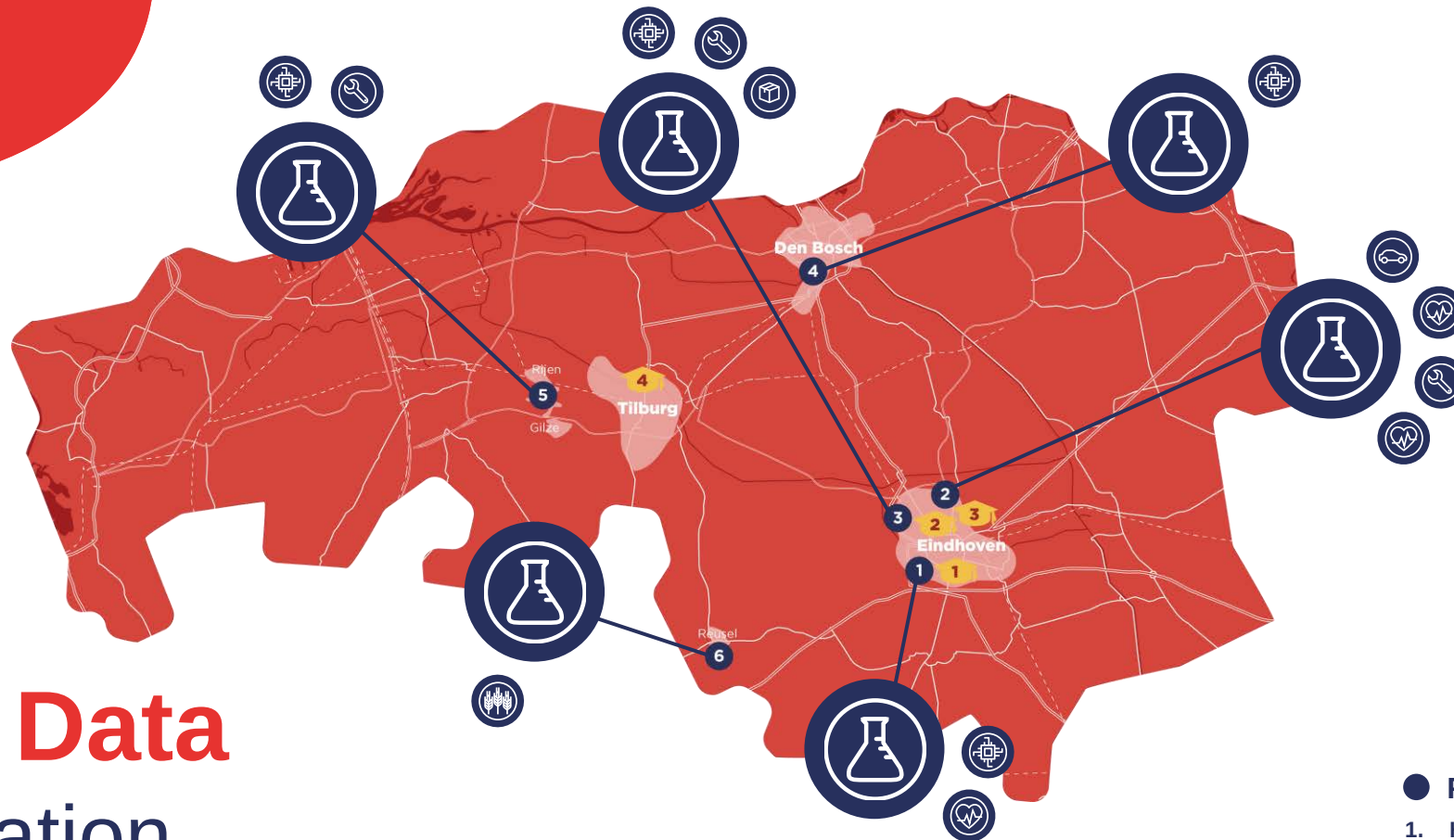


OPEN INNOVATION CLUSTERS & RESEARCH INSTITUTES FOR AI & BIG DATA SCIENCE

1. **Eindhoven AI Systems Institute:** focuses on deepening AI through innovative research in data and algorithms, widening AI by bringing in the human element: ethics, law and society and making AI a fundamental part of all engineering applications.
2. **AI Innovation Center:** is an incubator and accelerator of AI. The Center has the mission to industrialize AI in the Brainport Eindhoven region by raising the level of knowledge through, facilitating the required ecosystem and infrastructure and offering relevant services to drive AI projects and applications.
3. **MINDLABS:** strengthen the development of technologies that interact with human behaviour; in other words, human-centred AI. Partners want to help solve societal challenges using the unique possibilities of these technologies.
4. **5G hub:** research and test the possibilities of new technologies to stimulate innovation. This not only concerns 5G, but also, for example, artificial intelligence, virtual reality, augmented reality, blockchain and photonics.

AI & Data innovation clusters & fieldlabs

What sets Brabant apart from the rest of Netherlands, are the various innovation clusters and field labs around specific themes. These public-private testing grounds are hotspots for co-creation and speed up innovation.



Innovation clusters

1. EAISI (AI), **Eindhoven**
2. AI Innovation Center, **Eindhoven**
3. 5G Hub, **Eindhoven**
4. MindLabs, **Tilburg**

● Fieldlabs AI & Data Technologies

1. **High Tech Campus**, Eindhoven
Application: HTSM and LSH
2. **Tu/e**, Eindhoven
Application: Automotive, LSH, Maintenance and LSH
3. **BIC**, Eindhoven
Application: HTSM, Maintenance and Logistics
4. **JADS**, Den Bosch
Application: HTSM
5. **Gate 2**, Gilze Rijen
Application: HTSM and Maintenance
6. **Reusel**
Application: Agrifood

Our Ecosystem

Leading companies

Brabant accounts for almost 10,500 IT & Data Science companies and 12.1% of all jobs of the total sector in the Netherlands. These are the leading companies in the field of Smart Health and Artificial Intelligence.



LEADING & DISRUPTIVE AI & DATA SCIENCE COMPANIES

1. **Fruitpunch AI**, Online Educational platform for AI & Data, based on challenged based learning solving societal challenges. AI for Good Community
2. **Flow.ai**, complete toolbox to create Chatbots, AI assistants, Customer service or conversational commerce solutions.
3. **Pixyle.ai**, image recognition software that detects fashion items in images.
4. **Labelfuse**, End-to-end computer vision for event driven analytics
5. **Medvice Digital Health**, Machine Learning Supported Automated Medical Interview Systems
6. **YaDo-VR**, automated LIDAR data processing, automated classification resulting in DYNAMIC TRUE 3D IMAGERY
7. **Smart Robotics**, robots, delivers flexible robotic solutions.
8. **Agcurate**, Accurate and Rich Rural Intelligence for Agribusiness
9. **AI in Motion**, perception, localization and mapping for use in automated guided vehicles, unmanned ground vehicles, and drones



“HTC’s research showed that more than 70 percent of the companies on Campus see AI as the most important technology to focus on during the next five years.”

State-of-the-art facilities

High Tech Campus Eindhoven

Often recognized as the smartest square km in Europe, the **HTCE campus** is built around an ecosystem of 235 companies with a range of application fields. Home to over 12,000 innovators, researchers, and engineers that create the technologies and businesses of tomorrow.



OBJECTIVES

High Tech Campus is Eindhoven, the smartest km² in Europe, is an ecosystem of 235 high tech companies. It’s home to more than 12,000 innovators, researchers and engineers. Each company at High Tech Campus Eindhoven shares a common goal: developing new technologies and applications that help solve social problems and challenges, and successfully bringing these to the market.



LEADING MEMBERS

- Multinationals such as Philips Healthcare, Teleledyne Dalsa, NXP and Intel
- Research institutes like the Holst Centre, Philips Research and Innovation lab
- Scale ups and startups like Usono, Lifesense Group, Bambibelt, GTX medical and Sirius Medical



KEY CHARACTERISTICS

- 42% of all patent applications in the NL come from the Campus
- >85 nationalities
- **AI innovation Centre**
- **5g Hub**
- 12,500 Smart People
- Total 350,000 m²
- 25,000 sqm R&D facilities
- 1 billion private R&D
- Top 7 incubator for start-ups



APPLICATION AREAS

HTCE is a global hotspot in the areas of Health & Vitality, Sustainability, Applied Intelligence, Smart Environments & Connectivity and Software & Platforms.

HIGH TECH CAMPUS
EINDHOVEN

State-of-the-art facilities

Brainport Industries Campus

The most innovative and successful companies and institutions in the Brainport region come together as one on the **Brainport Industries Campus**.



HIGH TECH MANUFACTURING

Brainport Industries Campus is the place to be for far-reaching partnerships between suppliers, specialist companies and innovative education and knowledge institutes. This is where the next generation of professionals in the hightech manufacturing industry is trained in a state-of-the-art working and learning environment.



COOPERATION

Brainport Industries Campus is the very first location where high tech suppliers innovate and manufacture together, where the most successful companies share high-quality facilities, such as cleanrooms, flexible production areas, warehouses, and other advanced facilities, and where they present themselves as a unified force that they can showcase to their national and international customers.

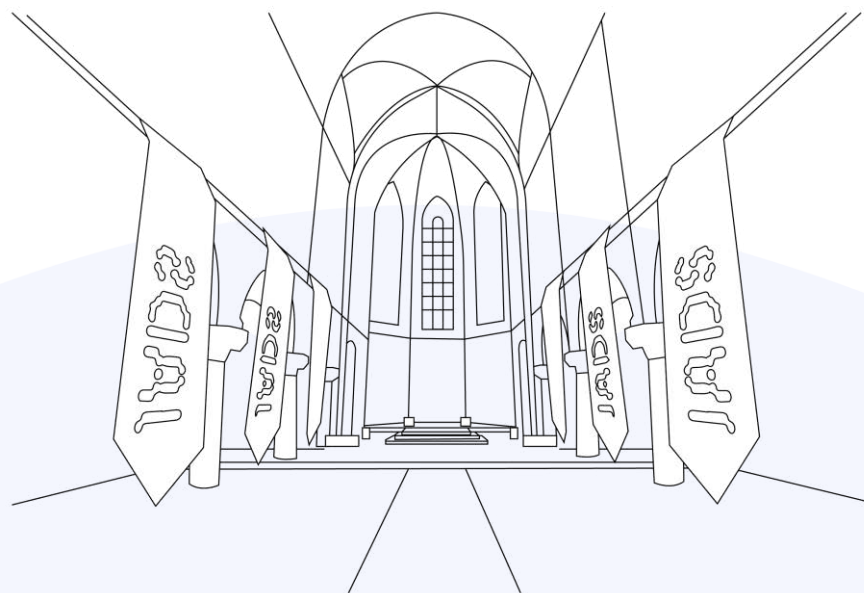


KEY FIGURES

- Over 35 companies
- 2,000 high level staff
- 1,500 students
- Surface 105,000 m²
- 6,000 m² of shared facilities
- 6,000 m² of shared warehousing

“AI for the high-tech manufacturing industry.”





Jheronimus Academy of Data Science (JADS)

At JADS, researchers and students work closely with the business community. In addition to education and research, JADS also offers space for innovative, data-driven entrepreneurship and public-private partnerships.

Key University

Jheronimus Academy of Data Science (JADS)

Data Science is essential to finding answers to today's challenges in the world.

JADS offers data science bachelor and master programs, PDEng education, professional education and help organizations shape their data driven future.



OBJECTIVES

The mission of JADS is to understand and use the value of data for solving complex societal and business challenges. The AgriFood industry is a Priority Industry to JADS, given that linking AgriFood to high tech by means of data communication, big data processing and artificial intelligence (AI) is one of society's challenges when it comes to sustainably feeding the world's growing population.



APPLICATION AREAS

- Social & Digital Entrepreneurship
- AgriFood and Nature
- Crime & Safety



THE JADS DISCIPLINES

- Data Analytics
- Data Governance
- Data Entrepreneurship



KPN RESPONSIBLE AI LAB

The goal of the Responsible AI Lab is to develop transparent, privacy aware, and personalized AI solutions for businesses. Students work in the lab on projects contributing to the technical and legal aspects of transparency, on data engineering approaches that ensure privacy-by-design, on personalized and responsible offerings through text analytics and responsible up-lift modelling.

Key University

University of Technology Eindhoven

Both AI and Data Science are Strategic Research area's of the TU/e. This field even has an dedicated Research Lab: **Artificial Intelligence and Data Engineering lab**.



KEY OPINION LEADER

Carlo van der Weijer

Carlo van de Weijer advises ministries and industries around the world on the future of mobility/AI and is member of the supervisory board of several high-tech companies and start-ups. He is an international speaker on exponential technology and the future of high-tech, amongst others as faculty member of Silicon Valley based Singularity University. Furthermore, he is a weekly columnist in the leading Dutch financial newspaper.



EASI

The Eindhoven AI Systems Institute brings together all TU/e artificial intelligence activities. Top researchers from the various research groups work together to create new and exciting AI methodologies and applications with a direct impact on the real world.

"AI for the real world".

Leveraging the development of artificial intelligence through an interdepartmental approach. AI and Data science is part of most TU/e programs. Dedicated courses are:

Bsc.	Master	Master Track	PDEng
Data Science (Joint Degree)	AI Engineering Systems	AI Engineering Systems	Data Science
	Data Science & AI	Data Science in Engineering	
	Data Science and Entrepreneurship	Smart Mobility Data Science and Analytics	

Key University

Tilburg University

AI & Data Science plays a role in providing better and more efficient responses to major issues. Tilburg University's strength is that it illuminates these issues from various angles. The university combines expertise in AI & Data Science with expertise in people and society.



DATA SCIENCE CENTER TILBURG

The Data Science Center Tilburg (DSC/t) brings together Tilburg University's scientific expertise in economics, management, law, social sciences, behavioral sciences, and the humanities to develop and apply data science.



TILBURG UNIVERSITY ARTIFICIAL INTELLIGENCE SPECIAL INTEREST GROUP

A wide variety of scientists are involved in AI at Tilburg University. The TAISIG pools and strengthens AI activities and accelerates the development of new research proposals and grant applications. The TAISIG is active in regional and national networks.



AI FOCUS

- **Health and care:** medical imaging, patient analysis, personalized care
- **Business and services:** business process optimization, fin-tech, market analysis
- **Education and learning:** learning analytics, virtual environments, on-line learning
- **Industry and transportation:** preventive maintenance, logistics, regulations
- **Society and government:** labor market analysis, livable cities, social legislation, decision support
- **Media and behavior:** online platforms, digital cultures, behavioral influencing



DATA SCIENCE FOCUS

- Consumer behavior
- Smart industries ("Industry 4.0")
- Health analytics
- Human capital and labor market
- Smart cities
- Finance institutions
- Legal analytics

Bsc.	Master
Data Science (Joint Degree)	Data Science and Society
Cognitive Science and Artificial Intelligence	Cognitive Science and Artificial Intelligence
	Economics: Data Science
	Data Science and Entrepreneurship (Joint Degree)
	Data and Digital Society

Key University

Fontys University of Applied Sciences

The Fontys University of Applied Sciences has campuses in Eindhoven, Tilburg, Den Bosch, Helmond, and Veghel and focuses on five research topics:

- High-tech Systems & Materials
- Smart Society
- Health
- Learning Society
- Creative Economy

AI & Data Science is integrated in all research areas of Fontys.



BIG DATA CENTER OF EXPERTISE

At the Centre of Expertise Big Data, Fontys focuses on adding value to extensive, complex, and dynamic collections of data.

The Center of expertise has its own **Big Data Lab**. The lab acts as a meeting place for data-driven service innovation. The Lab provides a practice-oriented learning environment for students, teachers, and professionals. The lab is also available for companies and organizations and for conducting research and high-quality experiments with large data sets.



FONTYS ICT INNOVATION LAB

In the Fontys ICT InnovationLab, students, lecturers, researchers and business professionals work together on applied research and the development of tomorrow's ICT solutions.

Focus:

AI & Big Data, Interaction Design, Embedded Software, Virtual & Augmented Reality, Game Design, Cyber Security, Blockchain etc.



Key University

Breda University of Applied Sciences (BUAS)

Main focus areas of the University is Game & Media developments.

BUAS is one of the best game design schools worldwide. The Games research program at the BUAS focuses on **digitally enhanced realities (DER)**, new forms of human interaction in environments designed with games blended with Big Data, geo-data, simulations, robotics, and **AI**.

The university also has a dedicated bachelor for **Applied Data science and AI**. (Project-Based Learning (PBL)).



THE DATA LAB

In the Data lab, students work on different real-life data projects. Students gain knowledge and skills by working for an extended period of time to investigate and respond to a complex question, problem, or challenge from companies.



THE CRADLE LAB

The BUAS is home to its own research lab: The CRADLE lab, where the next generation of games and digital media products and services are designed and created.

“Buas is the 1st university of applied sciences in the Netherlands to offer a degree programme focusing on the practical implementation of AI.”



Key Research Institute for AI

EASI Institute

World class Research: The Eindhoven Artificial Intelligence Systems Institute (EAISI) is the new institute of Eindhoven University of Technology in the field of artificial intelligence (AI).



OBJECTIVES

The Eindhoven AI Systems Institute combines all TU/e Artificial Intelligence activities. Top researchers from various research groups work together to create new and exciting AI methodologies and applications with a direct impact on the real world. TU/e has been active in the field of AI for many years, which gives the new institute an excellent starting position to build upon.



COLLABORATION WITH INDUSTRY

Building on the traditionally close ties of TU/e with industry, EAISI is partnering with a number of leading companies and organizations, both at a regional, national and European level. These include among others: ASML Philips Healthcare, NXP Brainport Eindhoven AI NL Coalition 4TU.Federation EuroTech.



FOCUS AREAS

1 High Tech Systems and Robotics

- Guaranteed machine performance
- Autonomous machine operation and smart human-operator support
- Multi-agent robotics
- PredITive maintenance

2 Health

- Improved diagnostics
- Personalized and wearable health systems
- Better understanding of personal health states
- Preventive health management.

3 Mobility

- Vision and Sensor capabilities for autonomous driving
- Data analytics for effective transportation systems and distributed traffic management
- Advanced Driver Assistance Systems

Example AI Research Labs at EAISI



AI-ENABLED MANUFACTURING AND MAINTENANCE (AIMM) LAB

The lab's goal is to develop better data science techniques that make improvements in both manufacturing and maintenance. The areas of research are:

- Autonomous Agents & Robotics,
- Computer Vision,
- Decision Making,
- Information Retrieval,
- Knowledge Representation & Reasoning,
- Neuro-linguistic Programming,
- Machine Learning.



EAISI FAST LAB

The research lab focusses on the improvement of both safety and performance of mobile robots systems in environments that are subject to static and dynamic changes. Research topics:

- Task-Driven Configurable SLAM
- Data Association and Object tracking
- Reliable, scalable, maintainable software architectures for autonomous mobile platforms
- Smart person AGV interaction



EAISI MOBILITY LAB

It aims to use the ongoing digitization of vehicles and transport services to bring about accident-free mobility. The Lab aims to design intelligent mobility systems that sense their environment, learn and understand it, and, in interaction with humans, reason about which action to take to achieve specific goals. Examples include new types of cruise control systems, pro-actively adjusting speed based on surrounding vehicles, traffic jam assistance and platooning:

- machine learning,
- world modelling,
- optimized human-machine cooperation,
- new vision and radar systems,
- ultrafast actuators.



Key incubator & accelerator at HTC

AI innovation center

AI Innovation Center has the mission to industrialize AI in the Brainport Eindhoven region. 1.100m² facility which brings together all relevant partners in the ecosystem. Pushing companies on the wave of Data Science and AI. Within the center, companies work on projects and share their knowledge and experience. The Center also acts as an incubator for AI projects & startups.

The focus of the center is on:



ENABLERS

- Bring together service providers, venture capitalists, governmental partners, research institutes and launching customers
- Build a dedicated AI ecosystem infrastructure to support and motivate companies to adopt AI



ACCELERATION

- Drive adoption and accelerate the application of AI technologies by companies in the region
- We organize workshops that support AI adoption and acceleration
- We offer a soft landing (eg workspace, network) to early stage startups



KNOWLEDGE & CAPABILITIES

- Organize events, workshops and training programs
- Support research, publish white papers, blogs and vlogs
- Bring in industry specialists to share the latest AI insights



PARTNERS

- ASML
- NXP
- Philips
- Signify



Key R&D Partnership

Mindlabs – “Where minds, media & technology meet”

MindLabs is a partnership involving four knowledge institutions, including Tilburg University, governments and a growing company of business partners, social institutions and startups. Together, MindLabs partners strengthen the development of technologies that interact with human behavior. With the unique capabilities of these technologies, partners aim to help solve societal challenges.



EXAMPLE RESEARCH LAB

Master mind:

The lab aims to develop interactive AI technologies such as serious gaming, augmented and virtual reality, intelligent tutoring systems and natural language processing and data science.

The goal is to develop AI technologies combined with the impact on and input from human behavior, across multiple sectors in society in the field of aerospace, logistics, maintenance, and education focusing on robotics and avatars, serious gaming and learning, language and data science technologies and virtual and augmented reality solutions.





Key R&D facility

5G Hub

The 5G hub acts as a **Research and development facility**. The 5G also acts as a "**technology community**" where companies come together to experience and be inspired by the recent innovations.



FOCUS TECHNOLOGIES

- 5G
- Artificial intelligence
- Virtual reality
- Augmented reality
- Blockchain
- Photonics



FOCUS AREAS

- Future of health
- Future of business
- Future of sustainability
- Future of entertainment



ACTIVITIES

- Develop
- Test
- Demonstrate (inspire)
- Network



POWERED BY

- Vodafone
- Ericsson



Showcase

IBM Client Innovation Center Eindhoven



SOFTWARE ENGINEERING

The IBM Client Innovation Center (CIC) specializes in agile and creative software engineering, user experience and journey design, and cognitive and enterprise solutions for data, AI, and IT tech.



BRABANT BUSINESS

Brabant in general and the Brainport region particularly, has a reputation for attracting high tech and innovative companies, leading to strong and collaborative networks for new technology innovation that is also the DNA of IBM.



BRABANT TALENT

With the Eindhoven University of Technology (TU/e) and Fontys University of Applied Sciences, Eindhoven is home to world renowned research and education institutions that specialize in technology and ICT. Eindhoven attracts talent thanks to its central location and proximity to excellent Dutch, German, and Belgian universities, including Tilburg University, the Jheronimus Academy of Data Science (a unique Dutch science university), and the Avans University of Applied Sciences.



*“The talented people
interested in studying and working
in Eindhoven make this city
an ideal location for
IBM Client Innovation Center.”*

LEOFWIN VISMAN

Managing Director – IBM Client Innovation Center

Showcase

Axelera AI



ARTIFICIAL INTELLIGENCE

Axelera AI is developing a game-changing hardware and software platform for AI. Its technology integrates a custom dataflow architecture with multicore in-memory computing to deliver extremely high performance at a power envelope of few watts and flexibility to support multiple networks.



BRABANT BUSINESS

Axelera AI, a Dutch spin-off of the emerging technologies unicorn Bitfury Group, established its headquarter at the High Tech Campus in Eindhoven. The company also has R&D offices in Leuven (BE) and Zurich (CH).



WHY BRABANT?

Almost everyone speaks English and the 30% tax ruling for skilled employees – who represent 95% of our resources - allow to attract talent from all around the world. We selected the region of Brabant because of its strong deeptech ecosystem. Worldwide leaders such as NXP, ASML, IMEC have operations or headquarters here, as well as international companies such as Intel, Synopsys, IBM and more. Brabant is also close to North Rhine – Westphalia, Bremen and Belgium, all areas of high interest and full of talent.”



*“The Netherlands is
an excellent place
for a company with
international ambitions.”*

FABRIZIO DEL MAFFEO
CEO and Co-Founder of Axelera AI



“Eindhoven has a very open tech ecosystem, with all the components that one needs to build up a chip company.”

MENNO LINDWER

Vice President

Testimonial

GrAI Matter Labs



ARTIFICIAL INTELLIGENCE

French developer of Artificial Intelligence chips with fast and ultra low-power technology.



BRABANT BUSINESS

In Eindhoven, GML researches and develops chips that have been inspired by the human brain. The majority of GML's staff works here in R&D. In 2019, the High Tech Campus, where GrAI Matter Labs is based, labeled the company 'one of the most exciting' startups of the Campus.



CHIP DEVELOPMENT ECOSYSTEM

Brainport Eindhoven is an excellent location for R&D and chip-related engineering. The ties of GML's employees with the Technical University of Eindhoven (TU/e) are strong. Moreover, the company's focus is on Robotics and Industrial Automation, industries that are most open to its solutions and that are highly developed in Brabant.