

# Saarland Informatics Campus

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## Contents

<b>1. The Saarland Informatics Campus</b>	
<b>Overview</b> .....	<b>1</b>
<b>2. Study Programmes and Graduates</b> .....	<b>1</b>
<b>3. Collaborative Research Initiatives</b> .....	<b>1</b>
<b>4. Awards</b> .....	<b>2</b>
<b>5. Rankings</b> .....	<b>2</b>
<b>6. Industry Partnerships</b> .....	<b>3</b>
<b>7. Entrepreneurship</b> .....	<b>4</b>
<b>8. Saarland: Environment and     Development Plans</b> .....	<b>4</b>
<b>9. Summary</b> .....	<b>4</b>

## 1. The Saarland Informatics Campus – Overview

The Saarland Informatics Campus (SIC)<sup>1</sup> is located on the Saarland University (UdS)<sup>2</sup> Campus and is one of the leading sites in Europe for research in computer science. Saarland University is a mid-sized public university with 280 professors, over 3,000 employees (scientific and administrative staff), and approximately 17,000 students. The university offers a wide range of disciplines for research and education, including medicine, law, economics, humanities, natural sciences, and engineering. Computer Science (CS) is one of the university's three core research areas, along with NanoBioMed and Europe.

The CS department of UdS, funded by the local state of Saarland, consists of 33 faculty members. It serves as the nucleus of a much larger computer science campus that has grown over decades and now includes a number of internationally renowned research institutions: The German Research Center for Artificial Intelligence<sup>3</sup> (1988), the Leibniz Center for Informatics at Schloss Dagstuhl<sup>4</sup> (1989), the Max Planck Institute for Informatics<sup>5</sup> (1990), the Center for Bioinformatics<sup>6</sup> (2000), the Max Planck Institute for Software Systems<sup>7</sup> (2004), and the CISPA Helmholtz Center for Information Security<sup>8</sup> (2020). Although these institutions are independent legal entities, they collaborate closely with one another. In particular, all senior personnel belong to the department of Computer Science at Saarland University.

## 2. Study Programmes and Graduates

The immediate vicinity of all the above-mentioned institutions on the campus of Saarland University enables excellent teaching. The Saarland Informatics Campus alone has over 900 researchers in the field of informatics, including 450 PhD students, and over 2,800 computer science students from more than 80 countries. The SIC offers 24 computer science and CS-related study programs, including new and timely programs such as Data Science, Artificial Intelligence, and Cybersecurity. These programs provide excellent opportunities for young talent and train junior staff in a variety of computer science fields. Upon completion, our graduates are highly sought-after.

The International Max Planck Research School on Trustworthy Computing<sup>9</sup> (since 2020) and the Saarbrücken Graduate School of Computer Science<sup>10</sup> (since 2007) recruit and train doctoral students from around the world, resulting in an average of 40 doctorates per year.

## 3. Collaborative Research Initiatives

For over 30 years, research on the SIC has been driven by collaborative research projects, with the partners teaming up in different constellations to address important research questions that require foundational knowledge from various fields of computer science. For instance, Saarbrücken was awarded a Cluster of Excellence<sup>11</sup> (2007-2019) and a Graduate

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<sup>1</sup><https://saarland-informatics-campus.de/>

<sup>2</sup><http://www.uni-saarland.de/en/home.html>

<sup>3</sup><https://www.dfki.de/en/web>

<sup>4</sup><https://www.dagstuhl.de/en/>

<sup>5</sup><https://www.mpi-inf.mpg.de/home>

<sup>6</sup><https://zbi-www.bioinf.uni-sb.de/de/index.html>

<sup>7</sup><https://www.mpi-sws.org/>

<sup>8</sup><https://cispa.de/en>

<sup>9</sup><https://www.imprs-trust.mpg.de/>

<sup>10</sup><https://www.graduateschool-computerscience.de/>

<sup>11</sup><https://www.mmci.uni-saarland.de/>

School in ComputerScience<sup>12</sup> (since 2007) as part of the prestigious Germany's Excellence Initiative<sup>13</sup>, emphasizing its role in computer science in Germany and beyond.

Current large-scale collaborative initiatives include, for example, the CRC 1102 "Information Density and Linguistic Encoding<sup>14</sup>", the CRC/TRR 248 "Foundations of Perspicuous Software Systems<sup>15</sup>", and the recently awarded RTG "Neuroexplicit Models of Language, Vision, and Action<sup>16</sup>", funded by the German Research Foundation (DFG). Recent initiatives from other funding sources include the Saarbrücken ELLIS Unit SAM for Artificial Intelligence and Machine Learning<sup>17</sup> (2020) and the Konrad Zuse School of Excellence in Learning and Intelligent Systems<sup>18</sup> (ELIZA, 2022) as well as the newly founded Center for European Research on Trusted AI (CERTAIN, 2023) to be built on campus.

#### 4. Awards

The activities in basic research have led to a series of awards: seven members of the SIC have been awarded Gottfried Wilhelm Leibniz Prizes, the highest scientific honor in Germany. Five have received a Konrad Zuse Medal, which is the highest honor awarded by the German Informatics Society. Five have been awarded a Beckurts Prize, and one received the "Deutscher Zukunftspreis des Bundespräsidenten". Many members of the SIC have also received significant funding from the European Research Council in the form of ERC Grants. These grants are widely considered to be Europe's most prestigious research grants. They support excellent researchers in carrying out ground-breaking, high-risk, high-gain, frontier research projects. Between 2009 and 2022, a total of thirteen ERC Starting Grants, ten ERC Advanced Grants, four ERC Consolidator Grants, one ERC Synergy Grant (jointly awarded to three faculty members) and five ERC Proof of Concept grants have been awarded to Saarbrücken researchers.

Overall, there are seven ACM Fellows at the Saarland Informatics Campus. Since the beginning of the Fellow program in 1994, only 19 researchers in Germany have been elected to this highest membership category of the ACM, seven of whom are at the Saarland Informatics Campus.

#### 5. Rankings

In Europe, the Saarland Informatics Campus ranks second in terms of the publication performance of its researchers (only the top publication venues are taken into account). This ranking was calculated using the data and algorithm from the popular open-source ranking<sup>19</sup>, combining the Saarbrücken CS institutes into one rank instead of listing them separately. Following the same ranking methodology, Saarbrücken ranks 19th worldwide among all 456 universities and research institutions. Furthermore, Saarland University ranks among the three best German universities in Europe.

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<sup>12</sup><https://www.graduateschool-computerscience.de/>

<sup>13</sup>[https://www.dfg.de/en/research\\_funding/funding\\_initiative/excellenc\\_strategy/index.html](https://www.dfg.de/en/research_funding/funding_initiative/excellenc_strategy/index.html)

<sup>14</sup><https://www.lsv.uni-saarland.de/research/crc-information-density/>

<sup>15</sup><https://www.perspicuous-computing.science/>

<sup>16</sup><https://www.neuroexplicit.org/>

<sup>17</sup><https://www.ellis-unit-sam.de/>

<sup>18</sup><https://ellis.eu/news/eliza-selected-as-konrad-zuse-school-of-excellence-in-artificial-intelligence>

<sup>19</sup><http://csranks.org/>

## 6. Industry Partnerships

The SIC has a history of collaborating with large industrial companies. For instance, <sup>20</sup> had its "Intel Visual Computing Institute<sup>21</sup>" located on the SIC between 2009 and 2019. The institute focused on research in the field of Visual Computing, which involves the acquisition, modeling, processing, transmission, rendering, and visualization of visual and related data.

In 2022, a strategic partnership between Google<sup>22</sup> and the Max Planck Institute for Informatics has led to the foundation of the VIA Saarbrücken Research Center for Visual Computing Interaction and AI<sup>23</sup> on the SIC campus. This center is the result of a long-standing and close collaboration between Google and the Max Planck Institute for Informatics in Saarbrücken. Google invested in this new center because of mutual understanding of long-term goals and plans to consecutively increase its funding. The center conducts basic research in frontier areas of computer graphics, computer vision, and human machine interaction, at the intersection of artificial intelligence and machine learning and is headed by Prof. Dr. Christian Theobalt, scientific director at the Max Planck Institute for Informatics.

Saarland's traditionally strong steel and automotive industries are closely linked to the SIC too: In 2019, ZF Friedrichshafen AG<sup>24</sup>, a global technology company that provides systems for passenger cars, commercial vehicles, and industrial technology to enable the next generation of mobility, established a new technology center for artificial intelligence and cybersecurity in Saarbrücken on Campus. They partnered with DFKI and CISPA, which are both located on the UdS campus. With the new "ZF AI and Cybersecurity Center," ZF is expanding its AI research activities. The center will coordinate and oversee all of the company's artificial intelligence (AI) initiatives in the future.

Since 2021, also the the national cyber security authority — the Federal Office for Information Security (BSI)<sup>25</sup> — has opened a branch on the SIC Campus given the challenging task of ensuring secure digitization in Germany. The employees at the new base primarily deal with the security of systems based on methods and procedures of Artificial Intelligence. In addition, they analyze specific AI-based attacks on IT systems and develop appropriate countermeasures.

In addition to the subsidiaries of large companies already mentioned that have settled on campus, there are a number of other partnerships ranging from small to large. For example, **Toyota** invests major funds in our research in Computer Vision every year, and the **Volkswagen Foundation** funds large research projects in the area of explainable systems. Overall, we have had close research collaborations over the past decade with more than 130 companies, including BMW, Volkswagen, Toyota, Airbus, Bosch, SAP, VSE, Siemens, Samsung, IBM, Intel, Google, Microsoft, Disney, and Facebook, just to name a few. 82 of these companies are internationally active and are market-leading groups from a wide variety of sectors, such as the automotive, transport, electrical, software, and entertainment industries.

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<sup>20</sup><https://www.intel.com/>

<sup>21</sup>[https://de.wikipedia.org/wiki/Intel\\_Visual\\_Computing\\_Institute](https://de.wikipedia.org/wiki/Intel_Visual_Computing_Institute)

<sup>22</sup><https://www.google.com/>

<sup>23</sup><https://www.via-center.science/>

<sup>24</sup><https://www.zf.com/>

<sup>25</sup>[https://www.bsi.bund.de/DE/Karriere/Arbeiten-im-BSI/Einblicke/Saarbruecken/Das\\_BSI\\_in\\_Saarbruecken\\_node.html](https://www.bsi.bund.de/DE/Karriere/Arbeiten-im-BSI/Einblicke/Saarbruecken/Das_BSI_in_Saarbruecken_node.html)

## 7. Entrepreneurship

In addition to industry partnerships, Saarland University provides a supportive environment for founding activities. The university participates in the German initiative "EXIST<sup>26</sup>", which supports scientists in creating startups based on inventions from university research. Through this program, founders receive stipends, as well as funds for technology development and business planning. In a recent "Gründungsradar" survey, Saarland University ranked second among the 59 large German universities in supporting the spin-off of research results into startups. The university's activities supporting researchers in entrepreneurship, innovation, and technology transfer have been consolidated into a new university institute called "Triathlon<sup>27</sup>", which includes an incubator for technology-based startups and a venture fund. Intellectual property generated through research is protected by an internal patent office. Software created at the university is protected by standard software licenses for open-source and proprietary-based business models. The "Innovation Center," a new building slated for completion in 2023, will provide a space for researchers and founders to collaborate on innovation projects, showcase results to the public, and host informational events.

## 8. Saarland: Environment and Development Plans

Historically, heavy industry and automotive have been the backbone of the Saarland economy: Saarland is the third largest automotive location in Germany<sup>28</sup> with an excellent reputation in the international software industry. Due to digitalisation and other factors of globalisation, the region is undergoing a major structural change – which it tackles successfully. Several international companies have announced investments in the billions in Saarland, strengthening the traditional pillars of economy while simultaneously driving forward the development of new opportunities in the region. For instance, the American company Wolfspeed<sup>29</sup> plans on establishing the world's largest production facility for silicon-carbide semiconductors in Saarland, investing approx. 2.5 billion Euro<sup>30</sup>. The Chinese battery manufacturer SVolt<sup>31</sup> announced to set up its European production center in Saarland, investing up to 2 billion Euro<sup>32</sup>.

## 9. Summary

Saarbrücken with its Saarland Informatics Campus is an attractive location for businesses seeking to establish a foothold in Germany. It offers a wide range of cultural activities and a relaxed housing market. In addition, its good transport links connect it to the German ICE and French TGV networks, as well as international airports in Frankfurt, Luxembourg and also Paris (which is easily accessible by train in under 2 hours). Moreover, Saarbrücken established an international school in 2019, offering bilingual German-English and German-French education up to high school level. A policy of fast routes supports companies in implementing their visions promptly, and there is free space near and on campus for businesses to expand into.

<sup>26</sup><https://www.exist.de/EXIST/Navigation/EN/Home/home.html>

<sup>27</sup><https://www.uds-triathlon.de/>

<sup>28</sup><https://www.strukturholding.de/themen/investieren-im-saarland/starke-branchen/>

<sup>29</sup><https://www.wolfspeed.com/>

<sup>30</sup><https://www.wolfspeed.com/>

<sup>31</sup><https://svolt-eu.com/>

<sup>32</sup>[https://www.saarland.de/mwide/DE/portale/wirtschaft/svolt-ansiedlung/svolt-ansiedlung\\_node.html](https://www.saarland.de/mwide/DE/portale/wirtschaft/svolt-ansiedlung/svolt-ansiedlung_node.html)

**SIC** Saarland Informatics  
Campus

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DES  
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