

COURSE FEATURES

- Study an internationally accredited, English language degree programme
- Work with state-of-the-art robots
- Be a part of high-profile, multidisciplinary research projects
- Cooperate with high caliber, industrial and research partners
- Prepare for a career in academia, research or industry
- Become involved in the award-winning RoboCup team: www.b-it-bots.de

WE'RE HERE TO HELP

- Close mentoring by faculty members
- One on one support from current students (study buddies)
- Great benefit from small class sizes and a tightly-knit community

THE INTERNATIONAL PERSPECTIVE

- Live and study in one of the nicest regions of Germany
- Join free classes in German and other languages
- Take the opportunity to spend a semester at one of the programme's partner universities
- Obtain a dual degree from the University of New Brunswick (UNB) in Canada

OUR ALUMNI

Employers include companies such as Siemens, Bosch, BMW, Google, IBM, Amazon and Boston Dynamics; institutes such as Caesar, DLR, DFKI and the three Fraunhofer branches in the region (IAIS, FKIE and SCAI) as well as others further away.

Candidates have obtained PhDs from German universities such as RWTH Aachen and the University of Bonn. They have also earned PhDs at numerous universities around the world from Australia to the USA and Canada. A number of these have also become professors.



AT A GLANCE

Degree
Master of Science (MSc)

Programme duration
4 semesters (2 years)

Teaching language
English

Start of programme

- Summer Semester (March)
- Winter Semester (September)

Application windows
For those who need a visa:

- Summer Semester intake: May 15 to July 15
- Winter Semester intake: November 15 to January 15

For those who need no visa:

- Summer Semester intake: May 15 to February 15
- Winter Semester intake: November 15 to August 15

Admission requirements

- An academic degree (bachelor's or equivalent) with at least 50 % computer science content
- A GPA of 2.5 or less on the German grading scale
- Proof of English language proficiency (B2+)

More information
www.h-brs.de/en/inf/autonomous-systems-msc

Department of Computer Science Autonomous Systems



Campus Sankt Augustin
Hochschule Bonn-Rhein-Sieg (H-BRS)
Grantham-Allee 20
53757 Sankt Augustin, Germany

Contact us
mas@inf.h-brs.de

Iman Awaad M.Sc.,
Programme Coordinator
Tel. +49 2241 865 295
iman.awaad@h-brs.de

For general information and application to the programme
Registrar's Office
Tel. +49 2241 865 697
studierendensekretariat@h-brs.de
www.h-brs.de/en/registrar-services

www.h-brs.de/en
www.facebook.com/AutonomousSystemsProgram

Autonomous Systems Master of Science (MSc)



Satz und Layout: Sandra Preuß, Corporate Design

Fotos: Kira Wazinski, Miriam Thüs, Padmaja Kulkarni

Stand 07/2022



**Hochschule
Bonn-Rhein-Sieg**
University of Applied Sciences

ABOUT US

The master's programme in Autonomous Systems is offered by the Applied Sciences Institute of the [Bonn-Aachen International Center for Information Technology \(b-it\)](#) which is a cooperative partnership between two renowned German centers of excellence: the Department of Computer Science at Hochschule Bonn-Rhein-Sieg (H-BRS) and the Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS).

Hochschule Bonn-Rhein-Sieg (H-BRS)

H-BRS was founded in 1995 with campuses located in Sankt Augustin, Hennef and Rheinbach. The programme is taught in Sankt Augustin which is located close to the cities of Bonn and Cologne (commuting by public transport is possible from both cities).

The Department of Computer Science is consistently ranked amongst the top departments in various Germany-wide academic university rankings.

Cooperation

The Fraunhofer organisation is the largest application-oriented research organisation in Europe with 66 institutes around Germany. Three Fraunhofer Institutes – the Institute for Intelligent Analysis and Information Systems (IAIS), the Institute for Algorithms and Scientific Computing (SCAI) and the Institute for Applied Information Technology (FIT) – are conveniently located in Schloss Birlinghoven, close to the university, while the Fraunhofer Institute for Communication, Information Processing and Ergonomics (FKIE) is also in the vicinity.

Our students also benefit from our cooperation with various other research and industrial partners, such as the German Research Center for Artificial Intelligence (DFKI), German Aerospace Center (DLR), Toyota Motors Europe, KELO Robotics GmbH and MeasX.



I had a wonderful time at H-BRS and in Bonn. I really felt comfortable and welcome. The professors and staff were very encouraging and always ready to help.

T. Hassan, India

CURRICULUM

	Semester 1	2	3	4
Lectures	<ul style="list-style-type: none"> Advanced Software Technology Artificial Intelligence Autonomous Mobile Robots Mathematics for Robotics and Control 	<ul style="list-style-type: none"> Elective Elective Elective 	<ul style="list-style-type: none"> Elective Elective 	
Seminars	<ul style="list-style-type: none"> Introduction to Scientific Working 	<ul style="list-style-type: none"> Advanced Scientific Working 		<ul style="list-style-type: none"> Research and Development Colloquium
Applied Research		<ul style="list-style-type: none"> Research and Development Project Software Development Project Scientific Experimentation and Evaluation 		<ul style="list-style-type: none"> Master's Colloquium Master's Thesis

The current curriculum can be found here: <http://curriculum.inf.h-brs.de>

THE PROGRAMME

The Autonomous Systems Group conducts cutting-edge, interdisciplinary research to enable the intelligence necessary for robot autonomy in dynamic environments. To address the challenges of such environments, we develop explainable, trustworthy and dependable systems by leveraging artificial intelligence research.

The focus is on enabling and integrating the necessary intelligence behind the autonomous behaviour of artificial agents rather than on the hardware-related aspects of robotics.

The academic year is divided into two semesters. The programme covers four semesters (2 years). Since the programme is a *master by a research*, students earn half of their credits through projects and applied research.

In the first semester, students take a number of *core courses* followed by a *compulsory seminar*. During their second and third semesters *applied research modules* are complemented by *elective courses*, e.g.:

- Deep Learning for Robot Vision
- Engineering Safe and Secure Autonomous Systems
- Fault Detection and Diagnosis
- Machine Learning
- Natural Language Processing
- Neural Networks
- Planning and Scheduling
- Robot Perception
- Probabilistic Reasoning

