Join Radboud Summer School 2019!

Biomimetic Robot Navigation

change perspective

Radboud University
The next new car you will own is likely to drive itself. If you wait 3-8 years, your new car might not even have a driving wheel, as Level 5 automation will enable robocars to navigate any road under any condition without human supervision. However, even then, the robocar will fail to match the navigational process of a rodent. Rodent navigation is driven by novelty seeking, as robocars avoid collisions. While rodents navigate any territory, independent from whether they know the environment, robocars need a map to identify a path to travel. Thus if a robocar does not know where it is and where it needs to go, it cannot navigate in its environment.

In this course, we will take advantage of what Systems Neuroscience has unraveled about how animals navigate in their environments and deploy them in robotic cars to perform autonomous navigation without a map. The course consists of lectures and hands-on laboratory practicals. Morning sessions are devoted to classroom lectures that will provide you with in-depth information about biomimetic animal navigation and control algorithms. In the afternoon you will have hands-on practicals during which you will build your own robotic car and deploy navigation algorithms to get ready for a robotic navigation competition on Friday afternoon.

If you are interested in this course, then the complementary course 'Animal Navigation', in the first week of July, might interest you too. For more information, go to our website.

After this course you are able to
• Describe how the brain performs sensorimotor computations
• Reproduce the brain’s sensorimotor computations in a robotic agent
• Generalize the robotic control algorithms across contexts
• Build your own robotic car and program it

Number of EC
2 ECTS credits

Course leaders
• Prof. Tansu Celikel
  Chair Neurophysiology & Department Head
  Donders Institute, Radboud University
• Prof. Ronny Hartanto
  Faculty of Technology and Bionics
  Hochschule Rhein-Waal, Germany
Admission documents
Motivation letter and CV, list of relevant prior coursework and grades. Recommended: two reference letters

Entry level
Advanced bachelor, Master, PhD, Postdoc and Professional

This course is designed for
Systems Neuroscientists, Roboticists, Computer Scientists and anyone with an advanced STEM education who is interested in robotic navigation. Prior advanced programming experience is required.

You can find more details about this course on our website

Deadline application
1 May 2019

Discounts
• 10% discount for early bird applicants. The early bird deadline is 1 March 2019.
• 15% discount for students and PhD candidates from partner universities. Please note that these discounts can be combined if you apply before 1 March 2019.

Course date
Monday 8 July - Friday 12 July 2019

Course fee
€ 780

Apply now!
What is the RSS experience?

**RSS is more than just a course!**

Radboud Summer School offers you a unique opportunity to meet other students and researchers from all over the world with different cultural and academic backgrounds. You will also get to know Radboud University and the city of Nijmegen. Our social programme includes a welcome reception, guest lecture and farewell drinks. And for a small fee you can join our BBQ, River Cruise on a pancake boat, a Pub Quiz, Sports Activities or a City Game.

**Want to know more?**
Have a look at what participants have said about their experience on our website!

**Contact**
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