

# Neuromorphic machine learning, AI and robotics for chemical sensing

Contact: Dr Michael Schmuker ([m.schmuker@herts.ac.uk](mailto:m.schmuker@herts.ac.uk))

We are seeking candidates who want to join an international team of researchers with the common goal to push the boundaries of chemical discovery. We use machine learning, AI and robotics to develop new methods chemical sensing (electronic noses), gas-based navigation in robots, and discovery in chemical space.

Our group leverages a new kind of computing hardware, so called *neuromorphic systems*, to translate processes from the brain into algorithms for efficient computing. We take inspiration from neuroscience to develop massively parallel, event-based, and power-efficient algorithms for machine learning, inference and control

Possible project topics include:

- Bio-inspired signal processing and pattern recognition for chemical sensing,
- Gas-based navigation for robots,
- Deep learning for fragrance and aroma discovery,
- Computing on neuromorphic hardware.

Candidates with diverse skill profile are most welcome, e.g. with a background in:

- Machine learning and AI, or
- Neuroscience and neural computation, or
- Signal processing and computer engineering, or
- Fragrance/aroma chemistry and computational chemistry methods

The successful candidate will be eligible for a research studentship award from the University (approximately GBP 14,777 per annum bursary plus the payment of the standard UK student fees). Applicants from outside the UK or EU are eligible but will have to pay half of the overseas fees out of their bursary.

The project comes with a number of opportunities to travel since we collaborate closely with neuroscientists, roboticists, computer engineers and machine learning experts around the world and attend international meetings and conferences. Travel costs will be reimbursed.

## How to apply

Please get in touch with Dr. Michael Schmuker ([m.schmuker@herts.ac.uk](mailto:m.schmuker@herts.ac.uk)) prior to your application in order to scope out a project proposal.

Application forms can be downloaded from our [announcement page](#).

Completed forms should be returned to

Mrs Emma Thorogood, Research Student Administrator  
University of Hertfordshire  
College Lane  
Hatfield, Herts, AL10 9AB  
tel: +44 (0)1707 286083  
[doctoralcollegeadmissions@herts.ac.uk](mailto:doctoralcollegeadmissions@herts.ac.uk)

Applications should also include two references and transcripts of previous academic degrees. We accept applications for self-funded places throughout the year. The next short-listing process for studentship applications will begin on **18 June 2018**.