# PhD studentships in Data Science and Neuromorphic Computing

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

Our group translates processes from the brain into algorithms for efficient computing. A particular area of interest is Neural Data Science, where we extract information from complex data sets obtained in neuroscience. Our goal is to shed light on how the brain is processing information and to cast this knowledge into efficient algorithms for pattern recognition and signal processing.

We implement such algorithms by leveraging so-called neuromorphic hardware, i.e., specialised computer chips that mimic the massively parallel architecture of the brain, which greatly accelerate brain-inspired neural computing.

We are looking for highly motivated candidates with a keen interest in squeezing every bit of information out of complex data sets, to understand how the brain copes with the relentless onslaught of sensory information, and to implement those aspects on a new computer architecture. Potential topics include (but are not limited to):

- Data mining in neuronal imaging using matrix factorisation and machine learning
- Brain-inspired pattern recognition using supervised and unsupervised learning
- Olfaction-inspired signal processing and odor recognition for electronic gas sensors

Candidates should have excellent programming skills and also some experience in data mining. Previous exposure to low-level hardware programming (e.g. microcontrollers, GPUs) and/or computer engineering is a plus.

We collaborate with world-leading neuroscience labs in the UK and abroad to investigate how the brain is processing dynamic sensory information. As a member of the Human Brain Project we pioneer the use of neuromorphic hardware for Data Science. This guarantees a stimulating research environment for a project that aims not only at generating theoretical insight but also validating the findings with experimental scientists and pursuing applications in the real world.

Successful candidates are 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.

Please contact Principal Investigator Dr. Michael Schmuker prior to application to scope out a project proposal that is tailored to your background, via email: m.schmuker@herts.ac.uk.

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Application forms can be downloaded from https://www.herts.ac.uk/study/schools-of-study/computer-science/our-research/the-phd-programme-in-computer-science .

Completed forms should be returned to

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College Lane
Hatfield, Herts
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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 **25 June 2018**.