PhD - Brain machine interface utilizing quantum magnetometers based on NV centers in diamond

Robert-Bosch-Campus 1, 71272 Renningen, Germany
Full-time and/or part-time
Legal Entity: Robert Bosch GmbH

Company Description

Do you want beneficial technologies being shaped by your ideas? Whether in the areas of mobility solutions, consumer goods, industrial technology or energy and building technology – with us, you will have the chance to improve quality of life all across the globe. Welcome to Bosch.

The Robert Bosch GmbH is looking forward to your application!

Job Description

- Join a team of scientists and engineers developing first prototypes of highly sensitive quantum sensors for magnetic field measurement. Your objective is a proof of concept for human brain activity measurement by magnetic field sensing in an unshielded environment by applying gradiometer techniques to quantum magnetic sensors.
- Your work is embedded in several national European public funded projects with leading, internationally renowned scientists in the field of quantum magnetometers working towards a universal brain machine interface.
- Help us to develop and setup a miniaturized, highly sensitive gradiometer for magnetic field measurement utilizing quantum effects of NV (nitrogen-vacancy) centers in diamond.
- Gain experience in the field of conception and validation of quantum measurement protocols for signal optimization.
- You deploy and validate machine learning techniques for the extraction of user intent from magnetic field measurement time series.

Qualifications

- **Education:** Master's degree in physics or electrical engineering with excellent grades
- **Personality:** innovative, curious and hands-on spirit
- **Working Practice:** structured, result-orientated and strong analytical skills
- **Experience and Knowledge:** detailed knowledge in quantum physics and practical experience with sensor electronics and signal processing, as well as with related development tools (MATLAB, Python), experience with machine learning and embedded software on ARM Cortex MCUs is beneficial
- **Languages:** fluent in English (written and spoken), German is beneficial

Additional Information

The final PhD topic is subject to your university. Duration: 3 years
Please submit all relevant documents (incl. motivation letter, curriculum vitae and certificates).
Are you interested in working from home, or part-time? Please don't hesitate to ask us.

Need support during your application?
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