

Jobbnorge-ID: 151103

Søknadsfrist: Avsluttet

Nettside:

Omfang:

Varighet:

6 PhD positions - Trust and Transparency in Digital Society Through Blockchain Technology

Trust and Transparency in Digital Society Through Blockchain Technology

The overall aim of this project is to advance knowledge and understanding of the technology, societal impact, and application potential of blockchain technology. Blockchains are only relevant when they relate mistrusting entities in a social context and serve a real application. Therefore the planned research on blockchains takes a multi-disciplinary approach including technological aspects (cryptographic mechanisms, networking requirements, identity management), societal aspects and application areas. The project team involves 12 professors across several different departments and faculties. Six interconnecting PhD positions are available. All project researchers will work together to solve problems with a sound theoretical basis and practical impact.

Project 1: [Blockchain Cryptographic Foundations](#)

The goal is to study different constructions for hash chains, signature schemes and their surrounding protocols and to analyse their combined properties from a cryptographic point of view, with emphasis on efficiency, privacy and anonymity.

Project 2: [Networking Impact and Support for Blockchains](#)

The objective is to investigate the networking impact on blockchains and vice versa. Development of a blockchain testbed will allow experimentation on real hardware. A significant part of the work will be to establish models to assess the performance and reliability of blockchains in a realistic networking context, and to develop analytic means and/or simulators to establish their properties.

Project 3: [Rights and Identity on Blockchains](#)

The main objectives of this PhD study are to develop: efficient and robust rights management with consensus across identity authorities and service providers; methods for privacy-preserving proof of rights and identity attributes; and a deep understanding of the real-life scenarios providing technical solutions to managing the trust links between off-chain and on-chain assets.

Project 4: [Blockchain Technology in Distributed Value Chains](#)

This project will explore the challenges connected to such a radical change in value chains and business models. The project will make use of the existing Learning Factory lab at Gjøvik. This lab offers a full Industry 4.0 production facility where advanced features can be tested in laboratory conditions. The PhD research fellow will be working in Gjøvik.

Project 5: [Blockchain Opportunities in Health Care and Health Sciences](#)

The goal of this PhD project is to understand and assess blockchain technology usage in realistic health care and health science applications. We will utilise HUNT Cloud to experiment and assess technologies using real life

Project 6: [Blockchain Technology in the Organizational Context](#)

The project will explore the organisational challenges of using blockchains in both private and public sectors, identifying the real benefits of the technology and its disruptive potential in Norway. We will focus on the legal, ethical, and social impacts of using smart contracts to encode and manage rights.

For more information about the project, contact Prof. Colin Boyd (colin.boyd@ntnu.no)

See also: <https://www.ntnu.edu/digital-transformation>

The candidates are expected to start in the autumn 2018.

All 6 successful candidates linked to this project are expected to work and collaborate closely through the duration of the project. Sharing knowledge, experience, and research is the key to a successful result.

Deadline for applications are May 27, 2018

Tilleggsinformasjon

Arbeidssted: