PhD fellowship in cryptographic voting

About the position

A new PhD fellowship in cryptographic voting is available at the Department of Mathematical Sciences at NTNU from fall 2019. The successful candidate will be offered a three-year position. The Department may offer a twelve month extension as a teaching assistant. The work place will be Trondheim.

Main duties and responsibilities

The position is connected to the project «Secure, Usable and Robust Cryptographic Voting Systems». This is a joint project between NTNU and the University of Luxembourg, funded by the Research Council of Norway and the Luxembourg National Research Fund. The goal of the project is to study the security of cryptographic voting schemes.

Traditional voting has some significant limitations. From a security viewpoint, it has relied heavily on trust in the election officials, which in turn restricts independent verifiability and high assurance regarding confidentiality of votes. In addition, traditional voting has problems regarding errors in counting, accessibility, and timeliness.

Although cryptographic voting systems have been proposed almost 30 years ago, and deployed in many countries more recently, there remain major obstacles to their widespread adoption. As we have seen in recent years, voting systems sometimes fail and they are susceptible to a range of attacks, even in established democracies.

This project will investigate the security of voting systems and increase our assurance in state-of-the-art voting systems. In particular, the project will study user confidence in cryptographic voting systems, security proofs for such systems, as well as options for long-term security (including post-quantum security).

Qualification requirements

The applicants should have a master’s degree in mathematics, or a master’s degree in computer science, communications technology or related areas, with a strong mathematical component.

A background including experience with cryptography is desirable. Candidates completing their MSc degree in 2019 are encouraged to apply. The position is also open for integrated PhD for NTNU students starting their final year of their master degree in Autumn 2019.

Norway needs candidates that can be security cleared. The PhD work itself does not require a security clearance, but candidates that can be security cleared may be preferred.

The candidates for the position must be fluent in English, both oral and written.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and national guidelines for appointment as PhD, post doctor and research assistant.

Personal characteristics

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement.

We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and inclusive work environment with dedicated colleagues
- favourable terms in the Norwegian Public Service Pension Fund
- employee benefits

Salary and conditions

PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 449 400 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The PhD fellow who speaks a Scandinavian language will be employed for 4 years with teaching and other duties of approximately 25% of the total available time. The PhD fellow who does not master a Scandinavian language will be offered a 3-year appointment.

Appointment to a PhD position requires admission to the PhD programme in Mathematics; please see http://www.ntnu.edu/ie/research/phd for information about the PhD programme at NTNU.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criterias in the latter law will be prohibited from recruitment to NTNU. After the appointment you must assume that there may be changes in the area of work.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

For further information, please contact: Kristian Gjøsteen, e-mail kristian.gjosteen@ntnu.no .

About the application:

The application must include the following:

- CV including information on educational background, work experience, preprints and publications
- A short research statement explaining the experience and the interest of the candidate for the research topic, and describing the relevance of the candidate's background to the research project (maximum 1 page).
- A copy of the master thesis, for those who are near to completion of their MSc, an extended abstract combined with a statement of how and when the applicant plans to complete the thesis.
- Any relevant publications. Joint work will only be considered provided that a short summary outlining the applicant's contributions is attached.
- Certified copies of relevant transcripts and diplomas. Candidates from universities outside Norway are kindly requested to send a Diploma Supplement or similar documentation, which describes in detail the program of study, the grading system, and the rights to further studies associated with the degree obtained.
- Contact information for at least two references.
- Documentation of fluency in the English language.

Other documents which the applicant finds relevant may also be included. We may ask for further documents when it is necessary during the hiring process.

Please submit your application electronically via jobbnorge.no, including the documents asked for above. Preferably, all attachments should be combined into a single file. Please refer to the application number 2019/12386 when applying.

Application deadline: 16.05.2019.

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Mathematical Sciences

We are Norway's largest university environment in mathematical sciences. The Department has a particular responsibility for all basis education in mathematical sciences for engineering and natural science students at NTNU. We focus on long-term basic research and applied research at a high international level.
Our aim is to meet the society's needs for mathematical and statistical expertise in business and public administration as well as in the research and education sector. The Department of Mathematical Sciences is one of seven departments in the Faculty of Information Technology and Electrical Engineering .

Jobbnorge-ID: 169452, Søknadsfrist: Avsluttet