

Move securely within the cyberworld

itrust consulting s.à r.l.

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PhD candidate in cryptography or artificial intelligence

itrust consulting is a leading actor in the information security domain in Luxembourg, specialized, among other things, in the design and analysis of cryptographic primitives, algorithms and protocols, secure coding and software development, risk assessment, intrusion detection and penetration testing. Since its inception, itrust consulting has been consistently involved in R&D projects through research partnerships with industrial and academic entities and continues to play an instrumental role in projects ranging from satellite-based quantum key distribution to intrusion detection systems for the Internet of Things (IoT).

We are looking for a motivated PhD candidate, eager to take on an exciting and challenging scientific project at the intersection of fundamental and applied industrial research, aimed at creating practical and efficient solutions. You will be working with highly skilled colleagues holding PhDs and Masters in similar areas. If this sounds like fun to you and you would like to learn more, get in touch with us.

Context

itrust consulting has an opening for an industrial PhD position¹ in quantum and post-quantum cryptography or in artificial intelligence (unsupervised clustering algorithms) in the context of intrusion detection systems.

Your role and tasks

- Carrying out research, disseminating results through scientific publications and giving talks at top international venues, in one of the following areas:
 - Cryptography: design and implementation of lightweight cryptographic protocols for end-to-end encrypted, quantum-secure communication for IoT, using hybrid classical, quantum and post-quantum constructions;
 - Artificial intelligence: design and development of novel, efficient and scalable unsupervised clustering algorithms aimed at intrusion detection systems in the context of the IoT;
- Managing the research project revolving around your PhD work;
- Providing guidance to MSc students doing internships at itrust consulting;
- Preparing a doctoral thesis in cryptography or artificial intelligence (machine learning);

¹ Co-supervision by host university and itrust consulting

Profile of the candidate

- MSc in Computer Science, Theoretical Physics, Mathematics, Electrical Engineering, or related fields;
- Strong mathematical and/or algorithmic computer science background;
- Familiarity with quantum-safe algorithms, quantum computation and information considered a plus;
- Good programming skills (low-level programming experience and excellent coding skills considered an advantage);
- Fluent written and verbal communication skills in English;
- Capability to work independently and within a team;
- Prior scientific publications considered a plus;
- Analytical and synthesis skills for technically correct, convincing, and easy-to-understand write-ups;
- Working knowledge of LaTeX considered a plus (familiarity with MS Office tools also welcome).

What we offer you at itrust consulting

- Competitive working conditions and stimulating learning environment;
- The opportunity to conduct cutting-edge research at the intersection of industry and academia;
- An international environment and the opportunity to collaborate with like-minded researchers and experienced programmers;
- The right place in Luxembourg for impactful work in information security and securing the infrastructure;
- Support with acquiring funding from multiple funding sources for your current and future ideas.

To apply, please send (in PDF format) your most recently obtained diploma and ratings for the last two academic years, an updated CV and a letter of motivation to Marianne Guérin (info@itrust.lu).