Research topics	Privacy-preserving spiking neural networks for automatic speaker verification
Position (M/F)	PhD, thesis offer
Reference offer	SN/MT/PhD/SNN/012024
Research Department	Digital Security (SN)
Publication date	26/01/2024
Start date	ASAP
Duration	Duration of the thesis

Description

EURECOM is looking for a highly motivated and talented PhD student to join our dynamic research team. Under the supervision of Prof. Massimiliano Todisco, this project represents a landmark in the field of technological innovation in speech technologies. The main objective is to address and solve two of the most urgent challenges in the field of speech and voice technologies: the critical need for increased privacy and the optimisation of energy efficiency. With the digital scene rapidly developing, protecting sensitive voice data from potential security vulnerabilities, and reducing the environmental impact of technology has never been more important.

Responsibilities

- Research development: the selected candidate will conduct fundamental research in the application of spiking neural networks for the processing of speech signals. This involves exploring both the theoretical underpinnings and practical implementations in the field.
- Privacy focus: investigate innovative approaches to enhance the privacy of sensitive speech data during its processing, transmission, and storage, acknowledging the inherent risks in current voice-driven technologies.
- Energy consumption optimisation: develop and test methods to reduce the energy consumption of always-listening devices, aligning with global efforts towards sustainable technology.
- Real-world application: apply this research to speaker verification in realistic conditions, ensuring high standards of privacy and accuracy.
- Collaborative efforts and dissemination: work within a multidisciplinary team and contribute to the broader academic community by publishing research findings, presenting at conferences, and participating in workshops and seminars.

Requirements

- A Master's degree in Computer Science or a related field.
- Strong background in machine learning and signal processing.
- Good knowledge of cryptography and privacy enhancing technologies.
- Familiarity with speech processing technologies.
- Proficiency in Python and experience with deep learning frameworks, such as PyTorch.
- Excellent analytical and problem-solving skills.
- Strong communication skills in both written and spoken English.

Application

The application must include:

- a comprehensive CV
- a letter of motivation detailing the suitability for the position
- and the contact information for two references.

Applications should be submitted by e-mail to Prof Massimiliano TODISCO (todisco@eurecom.fr) and CC secretariat@eurecom.fr with the reference: SN/MT/PhD/SNN/012024

About EURECOM

EURECOM is a major Engineering School and a Research Center in digital sciences founded in 1991 as a consortium in the international technology park of Sophia Antipolis. The IMT is a founding member of the GIE. Teaching and research activities are organized around 3 promising fields: digital security, communication systems and Data Science.

EURECOM has a staff of 150 (researchers and support teams) and welcomes 400 international students on the Campus Sophia Tech, the largest information science and technology campus of the region. EURECOM enjoys a privileged geographical environment on the French Riviera (Côte d'Azur), between sea and mountains, at the heart of a dynamic and multidisciplinary ecosystem that promotes high-level scientific and technological innovation.

Social advantages

- Attractive salary - Corporate saving plans
- Private retirement plan (executive, employer participation of 100%)
- Employee profit sharing policy
- Company health insurance (mutuelle) with high levels of guarantees for the whole family (employer participation of 60%)
- Restaurant vouchers: value 10,50 euros (employer contribution of 60%)

EURECOM has a dynamic policy in terms of inclusion and quality of life at work, committed to diversity and gives the same consideration to all applications, without discrimination.

EURECOM has a “Mission Handicap” policy. All our positions are open to people with disabilities. A designated disability referent welcomes and provide support to employees and students suffering from a disability. He puts in place the necessary arrangements and makes positive commitments in favour of a personalized integration.

EURECOM, as part of its Annual Gender Equality Plan, practices inclusive recruitment without any kind of gender discrimination. The conditions of employment are identical for women and men. In order to promote the diversity in its teams, EURECOM encourages male applications for administrative positions, traditionally occupied by women, and female applications for teaching/research positions, traditionally occupied by men.

EURECOM carries out positive actions within the framework of its CSR policy. A CSR referent steers EURECOM's policy in terms of CSR and energy transition (electric charging stations, solar panels, selective sorting, etc.).