ERICSSON

Master's Thesis, Next Generation Video Compression

About Us

At Ericsson we innovate to empower people, business and society. We envisage a Networked Society that is sustainable, and where everything that can benefit from a connection will have one. Our mobile and fixed networks, TV & Media solutions, telecom and Broadcast/Media services make a real difference to people's lives, and the world we live in. We predict that by 2020 there will be 50 billion connected devices, and of these, more than 15 billion will be video enabled. Ericsson will enable this through its market leading digital TV and compression technology.

The Visual Technology unit at Ericsson Research is driving research, development and standardization of next generation video compression and media delivery technology. We work in teams of highly experienced researchers, software developers, and standardization experts, and everyone has a high degree of individual responsibility and authority.

The Thesis

Video coding is about removing perceptually irrelevant information and exploiting redundant information in the video data, in order to facilitate high compression efficiency. HEVC is the latest video coding standard. Its first version has been finalized in 2013, and Ericsson Research has been one of the main drivers in its development. Similar as previous video coding standards, HEVC uses motion-compensated prediction from previously coded pictures as well as prediction from previously coded pixels within a picture to eliminate redundancy. On top of that, HEVC uses a combination of several advanced algorithms to reach high compression efficiency. As activities towards developing a successor to HEVC are starting, even better algorithms are needed in order to further improve the compression.

We are looking for a student that takes part in investigating how to achieve further improvements for future generation video codecs. The thesis involves implementing and investigating new algorithms developed at Ericsson Research, and it also leaves room for a creative student to come up with own ideas. The results of the work will be evaluated against the HEVC reference software in terms of both subjective and objective quality. The work includes reading up on video compression concepts, performing literature studies, practical implementations and writing of a technical report.

Qualifications

You are an open-minded student who seeks research work that will make an impact on the future, as video technology exists all around us in today's society. You are willing to build on top of your existing university knowledge and extend your competence into what is likely a new area. Moreover you have several of the following competences:

- Familiarity with signal processing, data compression or video technology in general
- Good programming skills in C/C++
- Excellent communication and team working skills
- Excellent written and spoken English, ability to work as part of an international team
- Strong result orientation and thirst for knowledge

The work is research oriented, so the ability to learn quickly, work independently and identify problems and solutions is necessary. Knowledge of other programming languages (like Python and Matlab) is also meriting.

Applications should include a short motivation letter and a CV (in English), as well as transcripts of records. Candidates are invited to send their applications as soon as possible.

[Apply online](.).

Contact	Kenneth Andersson, Senior Researcher; email: kenneth.r.andersson@ericsson.com,
	Per Hermansson, Experienced Researcher; email: per.hermansson@ericsson.com
Primary Location	Stockholm, Kista, Sweden
Schedule	6 months, full time