Postdoctoral research on deep video compression and enhancement (Tecniospring Industry call)

We are searching for excellent candidates with a PhD in Computer Science (or similar field) interested in conducting research in visual compression and enhancement with deep neural networks. The context of this project is an ongoing collaboration between the Computer Vision Center (CVC) at Barcelona and the BBC R&D at London. The contract depends on the successful application to the next Tecniospring INDUSTRY call (in either modality: outgoing+return or incoming). This talent program provides an excellent opportunity for career development.

Project description

This project will investigate novel learned image compression approaches, together with machine learning-based image enhancement and restoration techniques, in order to improve the quality and user experience of broadcasting content and archive footage. BBC R&D will provide expertise in standard video coding, image restoration and access to professional video content, and CVC will provide expertise in neural image compression, generative models and deep learning. The project will also benefit from a secondment at the University of Cambridge, where the researcher will gain expertise in advanced probabilistic models and Bayesian frameworks, and their application to the project.

Responsibilities

The primary tasks and responsibilities of the researcher are:
- Review the relevant literature and related works.
- Design and implement the relevant prototypes, experiments, and other research activities related to the project.
- Lead and coordinate the dissemination of the project results, including writing submissions to top journals and conferences.
- Write deliverables and technical reports.
- Engage with collaborators, participate in research discussions and contribute with new ideas.
- Participate in training activities.

Required qualifications

We are looking for excellent and self-motivated candidates with:
- PhD in Computer Science, Mathematics, Telecommunications or any other relevant field.
- Two or more years of postdoctoral full-time research experience.
- Strong programming skills.
- Excellent publication record in relevant top journals (e.g. PAMI, TIP, TMM, TCSVT) and conferences (e.g. CVPR, ICCV, ECCV, ICML, NeurIPS, ICLR).
- Track record that shows the ability to work both autonomously and in collaborative environments and projects.
- Excellent writing and communication skills in English.

Valuable skills

- Programming experience with Python and deep learning frameworks (Tensorflow, PyTorch)
- Experience in Bayesian machine learning.
- Experience in technology transfer, industrial research and/or research projects with both academic and industrial partners.
- Experience in preparation of research proposals for funding agencies, and writing technical reports.
- Awards and other distinctions.

Tecniospring INDUSTRY call and eligibility

Tecniospring INDUSTRY is a talent recruitment program of the Catalan government which funds two-year contracts of experienced researchers in order to develop applied research projects oriented towards technology transfer. It is co-financed by the Catalan government and the H2020 Marie Skłodowska-Curie actions. It considers two modalities:
- Mobility A: Outgoing and return. One year abroad and one in Catalonia. One year at BBC R&D (London) and another at CVC (Barcelona) in our case.
- Mobility B: Incoming. Two-year contract in a Catalan company. Two years at CVC in our case, with possibility to carry out a secondment at BBC R&D.

This program finances companies or technology centers with 58500 Eur/year for salary costs. In the case of Mobility B, during the year abroad this amount is corrected on a per country basis (up to aprox 85000 Eur/year in the case of the UK). The program also provides additional funding for research expenditures: research costs (15240 Eur/2 years), mobility (up to 1920 Eur/2 years) and open access publication (3000 Eur/2 years), in addition to training activities in technology transfer. Overall, it provides an excellent opportunity for career development.

Eligibility
Tecniospring INDUSTRY requires transnational mobility. This means that the candidates must not have resided or carried out their main activities (work, studies, etc.) in Spain or in the country of destination (mobility B) for more than 12 months during the 3 years prior to the call's deadline.

Interested candidates should contact Luis Herranz at lherranz@cvc.uab.es with a detailed CV including qualifications, publications, research and other relevant experience. The selected candidate and the host researcher will jointly prepare the materials for a strong application to the Tecniospring INDUSTRY call (deadline June 15, 2021).
It is advised to read the official information in the Tecniospring INDUSTRY website in advance (summary).

Important dates:
- Selection of candidates. **Until 6 June 2021.**

Tecniospring INDUSTRY call dates:
- Call deadline: **15 June 2021**
- Evaluation process: **until October 2021**
- Official resolution: **October 2021**
- Start of fellowships: **from October 2021 to April 2022**

About CVC and BBC
The Computer Vision Center is a public non-profit R+D center dedicated to computer vision research and technology. CVC hosts more than 100 researchers (university staff, post-docs, PhD and Master students), who publish regularly in leading journals and conferences of the field. It has been involved in a large number of projects involving public and industrial partners, including 11 spin-off companies. Thus, CVC provides an excellent environment to carry out applied research and technology transfer projects.
The British Broadcasting Corporation is a large broadcasting organization producing radio and television programmes in a number of studio centres throughout the United Kingdom. The BBC R&D department is the core of the corporation's effort to be at the cutting edge of media technology, and drives the exploration of exciting new tools for the production and distribution of programming.

Relevant researchers
- Dr. Luis Herranz, Computer Vision Center, Autonomous University of Barcelona (UAB), Barcelona (lherranz.org)
- Dr. Marta Mrak, BBC Research & Development (https://www.bbc.co.uk/rd/people/marta-mrak)
- Dr. José Miguel Hernández-Lobato, University of Cambridge (jmhl.org)