CELTIC-NEXT
Proposers Day
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VIRTUOSE
(Virtualized Video Services)

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Project overview

VIRTUOSE is a “set of tools to build virtualized video services”.

The VIRTUOSE project focuses on four use cases / work areas, which are: cloud gaming, multiparty video communications, video transcoding & distribution, and video analytics.
Project main achievements

- First **LHE video codec** implementation based on space domain and integrated in ffmpeg
- New methods for **video analysis based on Perceptual relevance** metrics (at space domain), coming from the first stage of the LHE video codec.
- New approach for **object detection** based on counting model which allows weakly-supervised training with state-of-the-art detection performance (using transfer learning and generation of synthetic training data)
- New **motion adaptive layer** selection algorithm which provides continuous video delivery and highly increased QoE especially on high motion activity video streams
- Several algorithms related to **object recognition, motion detection and perspective projection** and calibration were improved upon and evaluated in for challenging parking lot environments.
- Applying **virtualization proposal to VoD** have significantly advanced flexibility, time-to-market and scalability of video distribution services.
- Collaborative platform to easily integrate and access the different video services developed in the project.

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Project impact:

- Impact on 6 different products from different companies
- 1 new company adopted the technology
- Contribution to standards on video coding
- 2 journal publications & 36 conference papers
- 3 PhD theses and 13 master theses
- 4 open-source repositories

Impact by Nokia:

- Bring part of innovation to community, through open-source initiatives, speeding up the business cycle
- Push 5G through fundamental needs of video services
- **Exploit 5G benefits** through a new range of services enabled by 5G (remote driving, cloud gaming, remote virtual reality)
- Shake the market and move the big players and stakeholders (customers) through moving small players, opening opportunities in the video services platforms
- Create new research activities on real-time video processing (real-time object detection & tracking, video encoding and real-time protocols such as Q4S)
Thursday, March 1, 2018: Conference of Dr. D. José Javier García Aranda, Nokia “CLOUD GAMING: business, technical analysis and challenges for the future”. 7pm Assembly hall, ETSI de Telecomunicación, UPM

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