Associação CCG / ZGDV - Centro de Computação Gráfica

http://www.ccg.pt

BILATERAL MEETINGS

Wednesday 10:40 h – 13:00 h

Wednesday 14:00 h – 18:00 h

DESCRIPTION

1. ASSOCIAÇÃO CCG/ZGDV – CENTRO DE COMPUTAÇÃO GRÁFICA The CCG/ZGDV Association - Centre of Computer Graphics (www.ccg.pt), or CCG, was created in 1993 and as a private, non-profit making association. Its principal mission is applied scientific and technological research in the area of Computer Graphic and Information Systems, and it focuses on the development of activities and participation in national and international R&TD projects. CCG has as its constituent members the University of Minho and ZGDV - Zentrum fuer Graphische Datenverabeitung in Darmstadt, and various enterprises and national and foreign institutions. In order to promote R&TD in Computer Graphics and Information Systems as areas of its basic competence, CCG also assumed the role of a centre for technological transfer from the University of Minho to the Portuguese enterprises and other of institutions, like for example those in the public sector. CCG has joined, as a founding member, the excellence network GraphicsMedia.net: an International Network of Cooperation in Applied Research in Computer Graphics Technology, and Multimodal-Multimedia Visual Interactive Digital Technologies. GraphicsMedia.net, the International Network for the Cooperation in Applied Research in Computer Graphics, Multimodal Technologies, Multimedia and Digital Visual Technologies Interactive is based in Kaiserslautern (Germany), and aim is to create a strong

network of collaboration in applied research at international level. It has six partners of international reference from Germany (Deutsches Forschungszentrum für Künstliche Intelligenz - DFKI, Hasso Plattner Institut - HPI), Spain (Center for Visual Interaction and Communication Technologies - VICOMTech), Italy (Center for Advanced Computer Graphics Technologies - GraphiTech), Portugal (Computer Center Graphic: CCG) and Panama (Multimedia Interaction and Visualization Technologies (MIVTech). CCG R&D activities are based (and cross) four main domains of applied research: Computer Vision Interaction and Graphics; engineering process maturity and quality; Urban and Mobile Computing; Perception, usability and interaction. 2. DOMAINS OF APPLIED RESEARCH 2.1. CVIG - COMPUTER VISION INTERACTION AND GRAPHICS CVIG is CCG's domain of applied research on computer vision and computer graphics. The integration of these two scientific domains allows the study and development of technological innovative solutions, across all the development cycle, from the signal acquisition to its interpretation and correspondent output action. CVIG is supported by three key areas of expertise: • Computer Vision; • Computer Graphics; • Human-Machine Interaction. To which we add and highlight three technological areas: • Virtual Reality • Augmented reality • Virtual Actors On Computer Vision relevant information is extracted from images. CVIG develops, among other, on the following subjects: Electronic Surveillance (detection, tracking, and recognition, for example of people or vehicles), medical Images processing, object recognition and applications for industry. Applications integrating virtual actors (avatars) in the User Interface, applications developed as serious games, and virtual reality-based navigation solutions, as well as Human-Machine Interaction using natural languages (audio, gesture) user interfaces input modalities, are also topics of expertise. The owned technology of virtual actors has the advantage of presenting high graphical output quality even on low-end devices. 2.2. EPMQ - ENGINEERING PROCESS MATURITY AND

QUALITY The EPMQ is the CCG domain of applied research on engineering process maturity and quality. The main stakeholders to be involved EPMQ R&D activities are the companies dedicated to the development of systems, in general and software in particular, and members of research groups engaged in these scientific areas. The development of EPMQ activities may thus arise in two ways: the initiative of a R&D activity can originate in a specific interest in the validation of ideas of a researcher, or a perceived need for innovation by a development company. Currently, EPMQ is focused on software-based information systems, both on the engineering and management aspects, of the following research tracks: • Decision-support systems (Business Intelligence, Business Analytics, Dashboards, Data Mining e Data Warehouse); • Modelling of IT products and services (information systems and software development processes, business analysis, requirements elicitation, business model descriptions, and IT process and products business modelling and architecture design); • IT integration and interoperability (development of architectural models representing: mechanisms for technological artefacts, standards, protocols; conformity and interoperability assessment; methods, techniques and processes for product integration; requirements, models and integration concerns as references to integration tools, assurance and product quality assessment); • Cloud Computing (SaaS and IaaS): business models analysis and development, business and functional requirements specification, architecture design, SaaS prototype and product development, SaaS and IaaS system integration with other systems, SaaS billing mechanisms implementation, business support components implementation, and service provisioning components implementation; • Metadata and ontologies (multi-systems ontology development, semantic Web, Linked Open Data). EPMQ has background in Requirement Analysis, Systems Interoperability based in Logical Architectures, specification of services and products and logical architecture diagram for

cloud-based services, Standardization and Certification. 2.3. UMC - URBAN AND MOBILE COMPUTING The UMC domain is intrinsically linked to the Urban Computing application domain, positioning itself as an emerging field, which aims to give new and more complete experiences to the citizen, in their usage of the urban space, through new computer applications. It explores the fact that the public spaces, and even transport systems, incorporate more and more a large number of computing devices. The wireless and mobile communications networks are also ubiquitous and people are adept of personal computing devices and electronic communications. This influences the way citizen use urban space and the interaction in it, and it suggests the creation of new applications that allow the improvement on the perception of physical space and its enrichment in different forms. The UMC domain has the technical and scientific capability to enroll and create innovative solutions, among other, for: • Indoor positioning and navigation; • Mobile application development; • Urban sensing; • Intelligent transportation systems (ITS); • Ambient assisted living (AAL); • Wireless sensor networks; • Smart spaces These skills and competences have been applied and enriched through the participation in many research and industry projects , like for example in the field of Ambient Assisted Living, context awareness digital content distribution, real time location system (for hospitals), remote monitoring of chronical diseases, mobile solutions for tourism, etc. 2.4. PIU - PERCEPTION, INTERACTION AND USABILITY The PIU domain is dedicated to R&D studies on human perception, behaviour, adaptation, and interaction with his/her surroundings. In the field of perception, PIU develops research in basic perception processes, mainly processes of multimodal integration and perception-action in the visual, audio-visual, audio-motor, visual-motor, and, recently, olfactory modalities. Regarding interaction PIU has developed projects on the frontier between science and technology, focusing mainly on the user’s adaptation to new interfaces, devices, and motor

interaction. This acquired knowledge can be applied in areas such as biomechanics, rehabilitation, sports, entertainment, and assisted living. As for usability, PIU faces it as the applied area of knowledge that gathers ergonomics, functional design, accessibility, and the general development of user-centred design solutions. Supported by a laboratory equipped with cutting edge technologies, the PIU's team has already developed different applied projects in several areas, such as: • Studying road pavements that are acoustically comfortable for road users; • Calibrating audio-visual interfaces for assisted living; • Evaluation of technologies and interactions; • Driving simulation, interfaces for driver support, road safety; • Biomechanical studies and products for motor rehabilitation; • Analysis of comfort/ergonomic indicators (consulting); • Usability tests for product certification (consulting); • Collection and reproduction of 3D audio (noise studies, entertainment, modelling); • Psychophysical studies for the aromatization of spaces. The main goal of PIU is to develop human-centred studies and to participate in the creation of new products that contribute to a more adaptive, usable, and comfortable utilization, as well as products that help with health/rehabilitation, safety, and entertainment

ORGANIZATION TYPE Research,

AREAS OF ACTIVITIES INFORMATION AND COMMUNICATION TECHNOLOGY