COLABSQUARE

UT Austin | Portugal International Collaboratory for Emerging Technologies, CoLab

SEPTEMBER | 2016 . NUMBER | 59

YOU CAN FIND IN THIS COLABSQUARE EDITION:

WORKSHOP – MATHEMATICS OF COMPLEX SYSTEMS

The CoLab Workshop "Mathematics of Complex Systems: from precision medicine to smart cities" will be held at the Department of Mathematics of the University of Coimbra, Portugal, on December 5-6, 2016. The aim of the workshop is to bring together scientists and researchers who wish to be involved in the emerging field of complexity theory, in particular in the understanding of the nature and the behaviour of complex systems, such as cities or cells. Another goal of the event is to promote collaboration and facilitate communication between members of the different areas of the UT Austin - Portugal community.

Registration is free and includes access to all the sessions and the coffee breaks. We welcome submissions for a limited number of minisymposia or contributed talks.

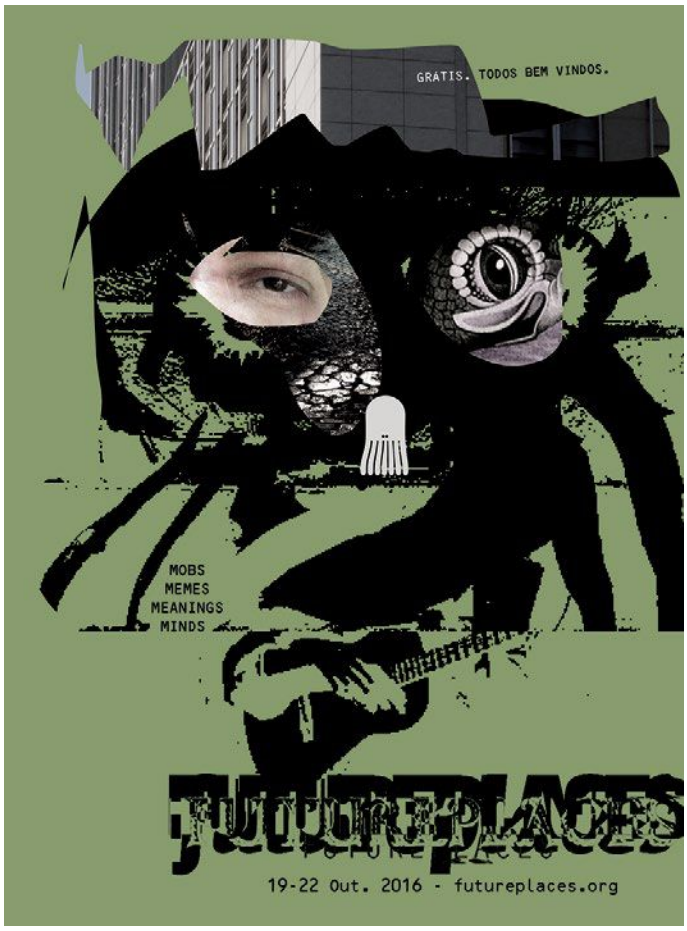
- **Website:** http://www.mat.uc.pt/colab2016/
- **Scientific Committee:** A. Araujo (CMUC), L. Caffarelli (UT Austin), I. Gamba (UT Austin), J.M. Urbano (CMUC), J. Videman (IST-UL)
- **Local Organizing Committee:** A. Araujo (CMUC), J. Gouveia (CMUC), R. Barreiro (IP-Setúbal), V. Quítalo (CMUC)
- **Sponsored by:** UT Austin - Portugal Program and CMUC (Centre for Mathematics, University of Coimbra)

FUTUREPLACES 9TH EDITION

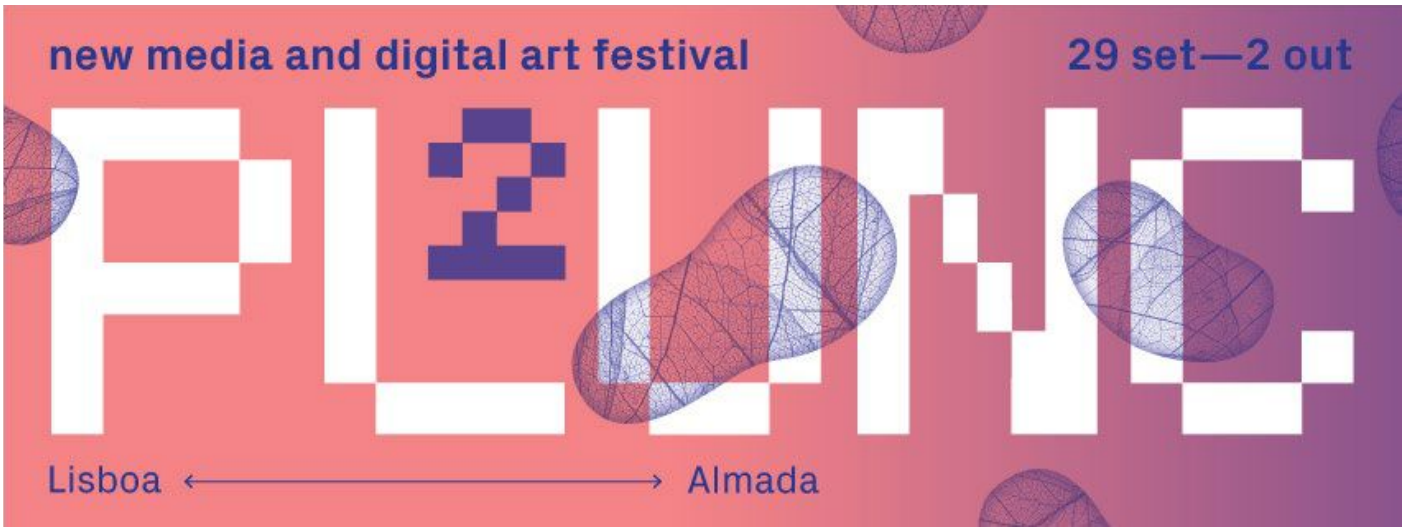
FUTUREPLACES, medialab for citizenship, is back for its ninth consecutive edition: October 19-22.

Free events and activities include a keynote lecture by Patricia Aufderheide ("Collaborative Creativity: How to Share the Challenge of Imagining the Future"), the Digital Media Doctoral Symposium, workshops in partnership with the University of Porto's Digital Museum and the Ephemera Archive, a historical exhibition of student activist documentation, and a footnoted film screening of Dolores Wilber's performance "147 pianos", documenting a 2013 recital at Lukas Piano Service on Chicago's west side where close to 200 musicians played piano scores all together, all at once.

A full list of activities and the full program can be accessed at **futureplaces.org**



PLUNC RETURNS SEPTEMBER 29TH



The 2nd edition of PLUNC - New Media and Digital Art Festival takes place between 29 September and 2 October 2016. Four days of a festival that presents to the broadest possible audience, projects and works that merge and intersect art and technology through exhibitions, workshops, talks and performances.

In this second edition, we sought to stabilize and optimize the structure and concept of PLUNC festival, solidifying the roots planted in the first edition, in order to allow its growth in future editions and affirm the festival in the national and international scene.

We keep the two structural concepts that define the identity of the festival.

The approximation and path between the shores of Almada and Lisbon and the focus on interactivity as one of the areas in digital art and new media.

With an exhibition hub in Lisbon, Fundação Portuguesa das Comunicações – Museu das Comunicações, and another exhibition hub in Almada, Casa da Cerca – Centro de Arte Contemporânea, and with various activities spread across other spaces on both sides of the river, we intend to create flows and routes between the two shores of Tagus river, encouraging people to cross the river from one side to the other during the 4-day festival. We ask for the active participation of the viewer, whether discovering the festival and the riverside area, whether through their participation in the various activities and interaction with the artworks on display.

In 2015 we had the focus on Zach Lieberman. Now, for the second edition, we chose as artists in focus Christa Sommerer and Laurent Mignonneau, pioneering artists of interactive art, which will be at the festival to a small retrospective of their work ("Portrait on the Fly", "The Value of Art", "Eau de Jardin" and "Phototropy") and a master class.

Eau de Jardin, by Christa Sommerer and Laurent Mignonneau

Their works will be in dialogue with projects from other guest artists and works resulting from an international open call, so we can witness its contamination, questioning and thus making room for reflection.

Christa and Laurent installations denote a global concern to work on the interface between man and machine, producing works that ask for a participatory audience, which fits perfectly with the identity of PLUNC.

In an edition with a strong speculative nature, look for the workshops and talks by James Auger, with his reflection on the concept of "smart", and Ben Grosser, investigating what computer systems know about us and the effects of software in our lives, some of the highlights are the works "Transiconmorphosis" by Emilio Vavarella and Fito Segrera, "CAPTCHA-T" by anaa colectivo and "Sea Battle" by Tiago Rorke proposing and reflecting on ambiguous communication systems in the near future, whether this communication is between humans, machines or humans and machines.

The last two works promote an interaction between both shores of the river. Other highlights are the real/virtual confrontation in "Home is where my heart is" by Nuno Correia, the fitness machines in" Artificial Mesmerism" by Thomas Grogan, investigating virtuality as a substitute for physical mobility and the sound installation "Estática" by Filipe Pais which retrieves the physical and visual contact in human interactions.

Estática, by Filipe Pais, UT Austin Portugal Alumni

In addition to the exhibitions there are several activities on both sides of the river, of which we highlight several talks and workshops by Filipa Tomaz with augmented dioramas and by Antonio Quiroga transforming electronic waste and obsolete objects into sound instruments that will culminate in a sound performance in one of the nights of the festival. The other nights will receive audiovisual and immersive performances by Monica Vlad and Artica DC, plus lots of music.

We invite all to interact with the festival, cross the river from one side to the other and to discover and reflect on art and technology.

PORTUGUESE ADVANCED COMPUTING STUDENTS @ UT AUSTIN

As in past summers, the Advanced Computing Program hosted a dozen of Portuguese graduate students from Minho, Porto and Lisbon who did internships at the University of Texas at Austin.

Group photo

Six students from the University of Minho (Filipe Oliveira, Carlos Sá, Luis Calado, Sergio Caldas, Nelson Torres and Tiago Santos) worked as part of Professor Donald Fussell's research team.

They focused on exploring new techniques for efficient scheduling of irregular applications on heterogeneous and mobile chips. The students were challenged to implement two physics simulation applications for computer graphics: i) thin cloth simulation and ii) 2D incompressible fluid dynamics.

During the internship they also interacted closely with Professor Etienne Vouga from the Graphics and Parallel Systems group who guided them through the physics and math side of the applications, and they were mentored by João Barbosa in the implementation and testing of the code on the Stampede supercomputer at the Texas Advanced Computing Center.

Luis Cubal dos Reis and João Ferreira Trindade from the University of Porto worked in Keshav Pingali's Center for Grid and Distributed Computing in the Institute for Computational Engineering and Science (ICES) at UT Austin. Luis did research on the parallelization of MATLAB codes on GPUs under the supervision of Sree Pai, a postdoctoral associate in Pingali's lab. Joao worked with Andrew Lenharth, a Research Associate in Pingali's lab, and he studied the parallelization of graph analytics algorithms on multicore CPUs.

Diana Oliveira and Júlia Pinheiro, two students from the Instituto Superior Técnico (IST) worked in Professor Michael Sacks's Research Center for Cardiovascular Simulation at ICES under the supervision of Dr. João Soares. Their work consisted on the design of a bioreactor under specific settings and on the study of the effect of the bulk modulus and of constitutive parameters for the Fung's constitutive model in simulations of the heart, focused on heart deformation and contraction in order to find the best values to mimic the real human case.

The two other students from IST, Tiago Brito and David Matos were supervised by Professor Emmet Witchel, from the Department of Computer Science and worked in collaboration with his PhD student Yige Hu and new faculty member Vijay Chidambaram. Their work consisted in creating benchmark tools to analyze the performance of SQLite databases in different contexts that can be used to calculate the throughput of SQLite and study how certain applications interact with the databases. During their stay at UTA they managed to deliver two fully functional prototypes that evaluate the performance and analyze how real applications use SQLite databases.

Students celebrating Portugal as champion of UEFA EURO 2016

To celebrate the successful completion of these internships, the group had lunch at a Brazilian restaurant near the UT campus, as shown in the photo. Alas, there was no bacalhau on the menu, but the interns loved the feijoada and felt that their experience in Austin would be very valuable for them in the future!

MANUELA FERNANDES AWARDED IN THE JUNIOR EUROMAT CONFERENCE

Manuela Fernandes, Ph.D student of the Advanced Materials and Processing doctoral program (AdvaMTech) at the Department of Materials and Ceramic Engineering, was awarded by Alemnis GmbH at the 13th FEMS Junior Euromat Conference, as the best oral presentation in the area of functional materials. The conference was held in Lausanne, Switzerland, from 10 to 14 July, 2016.

The work entitled "Microstructural evolution of K0.5Na0.5NbO3 thin films by in-situ TEM sintering", was developed between the University of Aveiro, with supervision of Ana Senos and Paula Vilarinho, and the University of Texas at Austin, with supervision of Paulo Ferreira, within the UT Austin|Portugal program.

UT AUSTIN PORTUGAL PROGRAM AT CIÊNCIA2016

The UT Austin Portugal Program participated in the national conference Ciência 2016, in Lisbon, from July 4 to 6.

Fernando Santana, UT Austin Portugal National Director and Professor Teresa Romão (FCT/UNL) presented the UT Austin Portugal Program and the Digital Media PhD Program in a session that gathered all FCT (Fundação para a Ciência e a Tecnologia) supported Portuguese international partnerships with American universities – UT Austin, CMU and MIT.
All presentations are available at the Ciência 2016 website: http://www.ciencia2016.pt/

Professor Teresa Romão presenting @ Ciência 2016

Several UT Austin Portugal PhD students and investigators had the opportunity to showcase their research work, namely João Barroso (UTAD; PI of the CE4BLIND: Context extraction for the blind using computer vision project), Rui Avelans Coelho (FCSH/UNL - Digital Media PhD student) and Inês Rodolfo (FCT/UNL – Digital Media PhD student) and Gonçalo Dias da Silva (FCT/UNL Graduate student) and several other students participated by sending posters of their work.

With more than 4400 registered participants, 200 institutions, 334 speakers, 523 posters, 74 sessions and debates about technology and science and 7 plenary sessions, this meeting aimed to gather the scientific community in an open presentation and discussion of the major issues, results and questions in today's international debate and that characterize the technological and scientific activity in Portugal.

SUMMER SCHOOL IN ADVANCED SCIENTIFIC COMPUTING AT U. MINHO

The University of Minho hosted the Summer School in Advanced Scientific Computing in June 20-23, at Campus de Gualtar, Braga. The Summer School gave the scientific community the opportunity to make contact with some of the most recent resources and technologies in advanced computing. This event welcomed 60 researchers mainly from Portugal, but also from Spain, England, and Germany.

Afterwards, the Summer School in Advanced Scientific Computing was a week-long workshop which introduced researchers, faculty, staff, students, and industrial partners to high performance computing, data analytics, and scientific visualization. This event was appropriated for all skill levels, from new users of advanced computing technologies to those who have research projects requiring powerful computing, visualization, storage or software capabilities.

The attendees should be motivated to take advantage of modern computer architectures based on an increasing number of CPU cores to better explore their potential.

Technology experts from the Texas Advanced Computing Center (https://portal.tacc.utexas.edu/training/summer-institute) have taught attendees on how to effectively use advanced computing resources and technologies like Stampede, Maverick, and Wrangler.

The course and lab classes in this Summer School were taught by experts in High Performance Computing (HPC) from TACC, from the University of Texas at Austin, with experience in similar courses.

This lecture team was composed by Dave Semeraro, João Barbosa, Todd Evans and Victor Eijkhout. Noteworthy, this edition featured a talk from Intel expert Harald Servat, who brought to us details on the new 36 dual-core Xeon Phi aka Knights Landing. Moreover, this Summer School was a unique opportunity in Europe and the contents were very close to those that TACC staff taught on the TACC Summer Supercomputing Institute, using the same course and training materials and accessing the same remote HPC resources at TACC.

More info:
http://www.di.uminho.pt/SS-AdvSciComp16

DIGITAL MEDIA DOCTORAL STUDENTS' NEWS

PhD Conclusions

EDUARDO M. PEREIRA
Thesis title: Humans in Action at Different Levels: the group, the whole, and the parts.
Defense day: July 4, 2016

My dissertation provides a bird-eye of the ecosystem of human activity analysis in computer vision by suggesting the categorization of actions in three different levels, the group in the scene, the whole in the frame, and the parts in the body, defined by the domain settings in which the application resides. We look for an intermediate characterization that provides a natural bridge between the type of content of the application, i.e. the perceptual inputs, and the application needs, i.e. the inferences. Therefore, my thesis investigates motion and relational-context representations, as the perceptual inputs, to support the modelling and detection of human action at each defined level, as the inferences.

The research was conducted under three domain settings, surveillance, multimedia and behavioral, which support the context and research gaps to tackle: i) efficient global motion representation for different surveillance scenarios; ii) individual and collective representations for social behavior analysis in surveillance scenarios; iii) importance of motion to identify relevant movement and integrate contextual information into multimedia video classification; iv) combination of motion features that capture expressiveness intention and characterization in non-verbal communication scenario. This PhD provided me the unique opportunity to work with top-level researchers around the world, namely USA, Canada, Colombia and Japan, and explore different approaches of computer vision and machine learning regarding the analysis of human activity. Thanks to my work, nowadays I'm working as a Senior Research Scientist in one of the biggest company in the world, namely UTRC in Cork, Ireland, where I'm continuing my research topic applied to very demanding and real problems.

SANDRA COELHO (FEUP)
Thesis Tittle: The exaltation of a sense - haptic art
Advisor: Miguel Velhote Correia (FEUP)

UPCOMING EVENTS

PLUNC
29 September – 2 October
Almada and Lisbon

www.plunc.pt

FUTUREPLACES
October 19-22
Porto

www.futureplaces.org

WORKSHOP: MATHEMATICS OF COMPLEX SYSTEMS
December 5-6
University of Coimbra

www.mat.uc.pt/colab2016/

ONGOING OPPORTUNITIES

2016 Call for Doctoral Scholarships in DM at U.Porto

Deadline: September 26

More information: http://www.up.pt/pdmd

MORE OPPORTUNITIES can be found at FCT website: http://www.fct.pt/concursos/