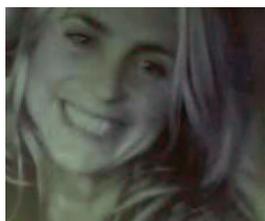


UT Austin | Portugal INTERNATIONAL COLLABORATORY FOR EMERGING TECHNOLOGIES, CoLAB

STUDENT HIGHLIGHT – Mónica Mendes – “RTiVISS » Real-Time Video Interactive Systems for Sustainability” (Digital Media)



Mónica Mendes is a Digital Media PhD student researching on the implementation of real-time video for sustainability and artistic experimentation. She holds a Masters in Multimedia Educational Communication, the degree is in Communication Design, and she

is a Multimedia Arts educator at the Faculty of Fine Arts of the University of Lisbon, and Interface Design for Mobile Devices instructor. Additionally, she developed projects as a designer, and she is also founder of the hackerspace *altLab* and a *CIEAM* multimedia research center member. An activist facet sparks due to the potential in contributing to forests preservation to a more sustainable world through critical research and experimental artistic approaches. Living in a country extremely exposed to forest fires, makes us very sensitive to an issue which also applies to a world scale. Despite previous measures, an attitude towards prevention seemed pertinent and urgent: how can we propose constructive approaches to the destructive dynamics of fire that aggravate climate change? Can art foster awareness and respect for nature? Combining physical and virtual worlds, Real-Time Video Interactive Systems for Sustainability (RTiVISS) offer participants a way to remotely monitor natural environments for forest protection. This exploratory research project proposes experimental design methods at the intersection of art and technology, with professors Nuno Correia from Sciences and Technology and Sílvia Chicó from Fine Arts as thesis advisors.

Collaboratively developed by artists, activists and technologists, these new systems strengthen environmental



awareness through “the emotion of real-time” and enable artistic explorations with digital media in interactive experiences, engaging the senses in unconventional ways. RTiVISS' outcomes include an online platform, displaying open real-time forests videos and correspondent artistic exploration, and interactive installations for public exhibition with real-time video of the forests as raw material. She is now focused on the design and technology of specific RTiVISS instances such as the interactive installations “Play with Fire” and “Hug@ree”.

The interactive installation “B-wind!” was developed with the collaboration of members of AZ labs and was exhibited recently at the transdisciplinary arts centre *O Espaço do Tempo*. Previously, “Treeellucinations” premiered RTiVISS at the Future Places exhibition in 2009, and “loev”, the live events multidisciplinary team project, was commended for its commercial potential at the 2008 Future Places exhibition. The overall research proposal has recently been distinguished as the best Portuguese paper at “Artech” international conference on Digital Arts, and was selected for presentation at ACM Multimedia this year. RTiVISS comprises a strong dimension on social and natural sciences combined with New Media, and with a challenging technological component – for the design of a better world.



R&D PROJECT HIGHLIGHT: “Reaction-Diffusion in Porous Media” -FCT Research Project UTAustin/MAT/0066/2008)

The accurate and efficient simulation of reaction-diffusion phenomena in porous media requires a blend of realistic physical modeling processes and careful numerical implementation. The range of environmental and industrial application of these models is wide and of utmost importance. The examples appear in just about every field. Anywhere with a fluid flow in solids that are porous, there are applications that use similar equations. For example the pollution of soils by fertilizers or pesticides are among the most relevant environmental problems. The simulation of the diffusion process in soils can be used to predict the evolution of this kind of pollution and can also contribute to define bounds on the use of chemicals reducing their environment impact.

Modeling these complex, multiphase, porous media systems gives rise to exciting algorithmic challenges. Small-scale and large-scale heterogeneities in porous matrix and/or fluid properties are the main sources of deviations of the so-called Fickian dispersion behavior. The aim of this project is to investigate non Fickian models for fluid flows in porous media characterized by small-scale and large-scale heterogeneities in several contexts. Our focus is to discuss the development of efficient and accurate numerical solutions, and give insight into the theoretical basis of the underlying methods.

Furthermore, our goal is to build efficient iterative-coupling algorithms which will be implemented in parallel. Due to the interdisciplinarity of the topic, the research team joins expertises in applied mathematics, computational science, and engineering.

COLAB News Center

Porto hosts second International School on Digital Transformation

The 2010 International School on Digital Transformation took place in Porto July 25-30 this year. The school drew about 50 students and speakers from around the world to discuss social and political changes related to digital communication systems. Particular attention was paid this year to evaluating the effectiveness of digital-media campaigns, but other talks covered technology, design, and media, particularly development issues.

In addition to the students this year organized informal sessions took place at a BarCamp or on topics such as digital storytelling, mixed-method research, and sustainability models. Other student-initiated activities included two tours of community-funded hacker spaces as well as a rousing karaoke night.



paings and interventions emphasized technological policy aspects of digital with an eye toward de-

scheduled speakers, participated in self-sessions similar to those UnConference. These all week, and touched media policy literacy, community informatics,

COLAB FACULTY PRESENTS WORK AT ANNUAL CONFERENCE of the International Association for Media and Communication Research (IAMCR)

Several UT Austin-Portugal program faculty and researchers are presenting work at the annual conference of the International Association for Media and Communication Research (IAMCR), held in Braga, Portugal, from July 18 to July 22. Derek Lackaff, a postdoctoral researcher at UT Austin, is presenting a study of social networks, produced in collaboration with Advanced Digital Media program co-director Sharon Strover and UT Austin doctoral student Christopher McConnell. Titled “Fostering Participation Through Educational Networks,” the paper analyzes the development of durable relationships among participants of the 2009 International School on Digital Transformation, an event produced by the UT Austin-Portugal program last July that attracted community activists, scholars of communication and civil society, and digital media entrepreneurs from around the globe. Also relating to communities and digital activism, McConnell is presenting a separate paper on independent media production and political advocacy within Austin’s highly visible bicyclist community.

In the IAMCR Digital Divide Working Group, Professors Joe Straubhaar of UT Austin and Cristina Ponte of the New University of Lisbon, among others, are reporting on their ongoing comparative study of

digital inclusion among majority and minority social groups in Portugal and the United States. This research is part of a larger joint project on digital media access led by Straubhaar, Ponte, and Professor José Azevedo of the University of Porto. The project grew from one of the two Digital Media program proposals selected for funding by the Foundation for Science and Technology in 2009, and includes the participation of a variety of researchers in the UT Austin-Portugal program.

■ COLAB MATHEMATICS announces Summer Course and Workshop on Machine Learning in 2011

The five-day course followed by a two-day workshop will take place May 31 to June 7 of 2011 at UT Austin. The syllabus for the summer course states:

"This Summer Course introduces a range of machine learning models and optimization tools that are used to apply these models in practice. For the students with some Machine Learning background the course will introduce what lies behind the optimization tools often used as a black box as well as an understanding of the trade-offs of numerical accuracy and theoretical and empirical complexity. For the students with some Optimization background this course will introduce a variety of applications arising in Machine Learning and Statistics as well as novel optimization methods targeting these applications. The models we will cover include: support vector machines, sparse regression, sparse PCA, collaborative filtering, dimensionality reduction. The optimization methods will include interior point, active set, stochastic gradient, coordinate descent, cutting planes method."

Travel support is available from both Portugal and the US. For complete details see: <http://math.utaustinportugal.org/summer2011.php>

■ UT AUSTIN | PORTUGAL ORGANIZES first Annual Conference in September 2010

CoLab is organizing its first annual UT Austin | Portugal Program Conference. The conference will take place on September 21st and 22nd at the Gulbenkian Foundation, in Lisbon. Mark your calendars!

The conference will show the program's students and R&D projects developments, as well as other activities it is currently involved in.

It will be open to the public and everyone is invited to attend. The event will have the participation of the program's Portuguese and American directors, industrial affiliates and researchers, as well as some important figures in the scientific and society areas, in Portugal and the U.S.

The preliminary agenda is now available online at <http://utaustinportugal.org/news/colab-annual-conference-2010> and more updates will follow soon. Please check the website for more news.



■ Advanced Computing interns at UT Austin by Meiling Guentzel

Nine Portuguese students from the Universities of Minho, Coimbra, and Porto spent five weeks with seven researchers at The University of Texas at Austin during the summer of 2010. Some students worked alone with their faculty mentors and others joined research project teams. Topics varied from software development to computer reproductions of bio-molecular motion.

Lúis Correia worked with protein dynamics research. "The thing I liked the most was that I needed to learn about all kinds of physics – keywords, behavior in fluids, all kinds of forces that explain molecular behavior – and more math than what I already knew just to understand the phrases



AC Interns at UT Austin's VisLab

that people in the lab kept saying to me," stated Correia. "Now that I look back to that first week and see myself having to read books and papers just to understand small details, I think it must have been very frustrating. But then again, isn't that the definition of a good challenge? Now that I'm done and can read related work papers, understanding basic implications in molecular dynamics, I feel much more confident, happy (I really like physics), and I am looking forward to finding a place where I can apply what I learned and expand my knowledge."

Other students researched topics with which they were more familiar. "I liked the opportunity to work in my field of study," Luís Miranda said. He and Nuno Barbosa focused on parallel and distributed computing. Filipe Brunido analyzed "ways to parallelize streamline calculations across multiple GPUs and multiple compute nodes. The research mainly focused on two technologies, NVIDIA's CUDA and MPI."

Some students learned different ways to view their courses of study. "The main benefit was that I learned a new perspective of computer science where it can be used as a tool for other sciences," André Lourenço said. He teamed with Luís Correia. "My task was to implement an algorithm in MOIL. The main difference between the existing algorithm and the one that André Lourenço and I implemented is the increased precision of the calculations without adding too much stress to the system," Correia said.

Roberto Ribeiro and Rui Magalhães da Costa explored a topic that consisted of "simulation and numerical experiments with materials with microscale structure – namely, heat conductivity," Ribeiro said. "The experience in Austin was quite profitable because I learned and developed several research methods and capabilities that I hadn't experienced before. I was also quite surprised with the mentoring. Very experienced supervisors were always supporting us which was quite helpful in achieving the project goal in five weeks."

André Rocha and Nuno Faria temporarily joined the "computational visualization center (CVC) crew," Rocha commented. "Our main goal was to enhance a software project by adding additional features that would increase the software's performance significantly." Faria said that he and Rocha worked with a team that developed "an application for volume rendering. More specifically, we helped develop the I/O module of HDF5 files in the Volume Rover application. I noticed that the available projects are important and the results that we reach may have a very important role in someone else's research. I started having a new perspective on how to manipulate very large scientific data, and I think it will come in handy in the future."

Students stayed in a UT Austin dorm. Most of them secured their research opportunities by telling their supervising professors in Portugal that they were interested in studying abroad, writing a CV, and submitting a motivation letter. Dr. Keshav Pingali, a computer science professor at UT Austin, selected the students.

"I met Dr. Pingali in a summer school that he [facilitated] in Portugal," Correia said, "I found out about this opportunity and asked a professor in my university about the chance to come to the U.S." To Portuguese students interested in researching with UT Austin, Barbosa advises, "Sometimes the offers aren't public. You need to search and investigate. Speak with your supervisor or with a teacher who is close to you to find out if it is possible to visit." Magalhães da Costa suggests, "Be professional with your work, bring comfortable summer shoes, and maybe some hankies in the first few days until you get used to the thermal shocks of going into and out of buildings in Austin!"

Summer School CoLab newsletter article

http://utaustinportugal.org/news/david_kirk_former_chief_scientist_at_nvidia_in_portugal_for_an_advanced_com/

■ ZON LAB ends in Austin

The first ZON Intensive Script Development Lab ended its UT Austin phase at the end of July. The eleven winning participants, who come from universities across Portugal, finished their workshops with Richard Lewis, Stuart Kelban and Steve Mims and have returned to Portugal so they can now direct and post-produce their works in their respective universities.

The program's schedule was packed and incredibly intense, with twenty hours of course meetings per week, in addition to assigned reading, writing assignments and production exercises. The students all took the workload very seriously and enjoyed the teachers, the universities' facilities and all the assignments. All the students are now in Portugal working on the last phase of the program.

■ PORTUGUESE JOURNALISTS visit UT Austin

A team of Portuguese journalists from SIC Notícias and Diário Económico has traveled to UT Austin from July 21st to July 25th to cover the Portuguese students developing their work in the program and the American side of CoLab.

The journalists visited with the directors of the different areas of the UT Austin | Portugal Program, as well as Portuguese students currently at UT Austin doing their PhDs, workshops and internships.



Portuguese journalists interview Luis Caffarelli, Mathematics Director

■ THE UTEN CORNER

2010- UTEN Training Week #3

New Paradigms in University-Based Technology Business Incubation



Days 1 and 2: May 25-26, 2010

This UTEN Training Week focused on University-Based Technology Business Incubation and presented different perspectives and practical overviews of trends in incubation models and key tasks and responsibilities of incubators and TTO's regarding venture creation, company growth and internationalization.

Ms. Laura Kilcrease (Managing Director of Triton Ventures, founding Director of the Austin Technology Incubator, and chief architect and consultant for more than 20 years to incubators across the US and internationally) kicked off the workshop with a discussion focused on the future and highlighted several global trends in business incubation centered around practical and proactive ways to create ventures from scratch using existing resources (human and capital), and how to form companies quickly to take technologies to market. Mr. Omar Hakim (Director of the Regional Valley Innovation Center and Incubator associated with Texas A&M University, former CEO of IP Knowledge Ventures, and long-time global consultant in IP, technology commercialization, and international venture creation) then presented several complimentary globalization and

internationalization models that were also considered in conjunction with ways to create competitive advantage through creative and innovative global capital sourcing models and market access across international partnerships. Ms. Aruni Gunasegaram (Manager of Operations and Finance for the Austin Technology Incubator and former CEO of Babblesoft) discussed tools and methodologies related to more traditional aspects of incubator management such as due diligence, company selection, community engagement, and incubation services. These areas and supporting tools were considered relative to the new paradigm of incubation and current challenges, and with particular focus on ways to leverage international partnerships to enhance local assets and succeed within local context and operating environment.

Workshop participants were engaged with multiple learning objectives through highly interactive presentation and discussion and exercises including case studies, live role-plays of international venture creation, individual learning libraries and proposed exercises, as well as group discussion of key topics.

Brief presentations were augmented by group discussions and hands-on assignments focusing on:

- Internationalization and soft-landing
- Incubator formation, growth, and sustainability
- Regional context and business incubation
- Company selection and growth: Challenges and Successes

Learning Objectives/Areas addressed:

- A. How do we move beyond the current paradigm of business incubation to launch more high-growth global companies?
- B. How do we select and service companies for success?
- C. How do we utilize international partnerships to leverage commercialization resources, capital, research, technology, infrastructure, market access, and talent?
- D. How can we best support portfolio companies to prepare to go global?
- E. How can we facilitate successful engagements between companies and international partners? Landing pads? Commercialization partners?
- F. What is required to foster trust with international partners?
- G. How can we prepare our companies so that they are able to form partnerships quickly and minimize time-to-market internationally?

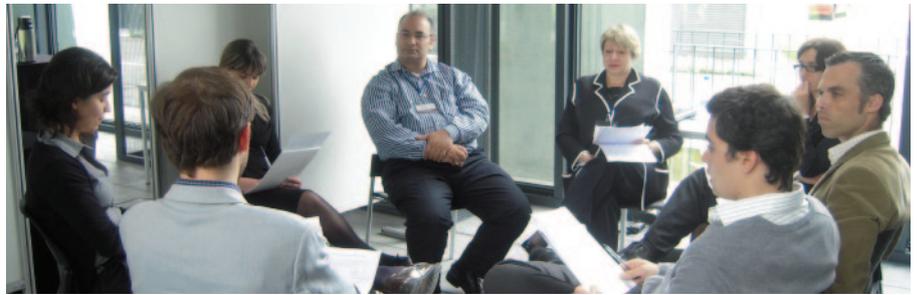
UTEN would like to thank the University of Minho and AvePark/SpinPark for hosting this event and convey our sincere appreciation to all who attended, most especially to those who supported the operations and helped to make this event possible.

DAY 3: Wednesday, May 27, 2010

Meetings with speakers

UTEN speakers and staff met with workshop participants as well as UTEN stakeholders from the Minho region to dive deeper into specific initiatives as well as discuss ways to collaborate across portfolios to accomplish common objectives. Participants took this opportunity to present and discuss their most promising and most challenging opportunities for US on-shoring as well as bi-directional venture creation opportunities with our guest speakers. The entrepreneur, innovator and other (select) stakeholders were also invited to be present when possible. A full schedule of meetings yielded several actionable opportunities and action plans were drafted for follow-up.

During Day 2 of the Workshop, participants formed teams and underwent live negotiation exercises illustrating the challenges and opportunities associated with company formation and aligning diverse international stakeholders to take a technology to market. Each participant was given a role to play and was asked to defend/advocate for his/her position. Each group was then charged with reaching a deal within a limited period of time. The outcome was very effective and yielded a robust and energetic exchange of ideas and perspectives.



Group 1: Omar Hakim and Laura Kilcrease facilitate negotiations exercise with workshop participants



Group 2: Aruni Ganasegaram and Eli D. Mercer facilitate negotiations exercise with workshop participants

UTEN Training Week #4: Best Practices in University-Industry Relations: Setting up and Managing an Industrial Liaison Office

The fourth UTEN Training Week of 2010 took place in Porto on 19 and 20 July at the Polytechnic Institute of Porto.

Under the theme "Best Practices in University-Industry Relations: Setting up and Managing an Industrial Liaison Office (ILO)", the Training Week provided participants with a number of real-world examples of how ILO's have been established to date, to share the "lessons learned",

to consider the future and leading-edge practices in the space, and to provide a proven framework for the establishment of such offices and programs in UTEN member universities. The goal was to help participants to meet



their specific research and commercialization objectives as well as to create greater regional and international

partnerships for economic growth. Three primary areas were addressed: "Developing a strategy", "Structure and Programs" and "Talent and Relationships" and the approach was "hands-on training".

Bill Catlett, Associate Director (Industrial Relations, Office of Sponsored Projects) and Acting Director (Center for Emerging Technology

Commercialization) at the University of Texas at Austin, and Anthony Boccanfuso, Executive Director of the University Industry Demonstration Partnership at the US National Academy of Sciences were the invited experts.

UTEN INTERN STORIES: Pedro Silva and David Resende

Pedro Silva of TecMinho and David Resende of Universidade de Aveiro arrived late in July to begin their second phase internships as a part of the UTEN program. Pedro Silva will be hosted by Emergent Technologies, a \$20 million dollar Austin based venture capital fund exploring the Innovation Services Model. In addition, Mr. Silva will be engaging in active pursuit of targets for technology licensing within the US. Dr. Resende will be hosted in Austin and engage in ongoing research in the field of technology transfer and innovation.

■ UTEN INTERN STORIES: Marlos Silva

Marlos Silva, Universidade de Aveiro, arrived in Austin on July 22nd to begin his 6 week internship course with Emergent Technologies, Inc. a \$20 million dollar Austin based venture capital firm (www.etbio.com). Marlos will be working under the joint mentorship of Senior Leadership from Emergent along with UTEN Program Manager Heath Naquin. The primary focus of Mr. Silva's internship will be in the active identification of US based firms who might be suitable for Universidade de Aveiro technology bundling. In addition Mr. Silva will play a critical role in the actual creation of two separate US based venture sponsored start ups. Mr. Silva will also engage in various pre-scheduled venture and industry meetings as a part of his internship with such institutions as: Austin Ventures, Venture Labs, Texo Ventures, Microsoft and others.



Marlos Silva, TTO Aveiro and Dale Gannaway, Vice President, ETI Services Division, Emergent Technologies [<http://www.emergenttechnologies.com/>]

■ ONGOING OPPORTUNITIES

INTERNSHIP OPPORTUNITIES IN AUSTIN COMPANIES (DIGITAL MEDIA)

We have recently updated our internship program and encourage graduate students and early-career professionals interested in gaining hands-on experience working at Austin-based companies to apply. The program includes airfare to Austin, housing for up to 3 months, health insurance, and visa fees. We also list interns as "visiting researchers" at the University of Texas, which grants them access to the university library system, gyms, and other campus amenities as well as the city bus system. Those interested in applying can find more information about the program, including application procedures at <http://colab.ic2.utexas.edu/dm/internships/>

Applications may be submitted at any time, but the minimum time for processing and placement is 4 months, so those interested must plan ahead.

Internships will last a minimum of 6 weeks, and interns will be placed at digital media companies in Austin. During their time in Austin, interns will not only have the opportunity to learn about the digital media industry through their internship assignment, but will also be able to participate in professionalization and leadership training with University of Texas students enrolled in the Digital Media Leadership Program.

Useful links

www.utaustinportugal.org

www.fct.mctes.pt

www.utexas.edu

www.ic2.org

www.ati.utexas.edu

www.austin-chamber.org

<http://colab.ic2.utexas.edu/dm/>

www.utenportugal.org

We want to hear from you! Want to share your doubts and concerns about something you read? Want to see other topics featured in next month's newsletter? Want to contribute with articles or art? Please send all your feedback to sofia.santos@fct.mctes.pt.