

# COLABSQUARE

UT Austin | Portugal INTERNATIONAL COLLABORATORY FOR EMERGING TECHNOLOGIES, CoLAB

## STUDENT HIGHLIGHT

Marta Ferraz – PhD Thesis: “Interaction Children-Machine: Real and Virtual Hybrid Symbiosis: From the Body to the Universe



Marta Ferraz is a PhD student at UNL/UT Austin program - International Collaboratory for Emerging Technologies - CoLab. She's also Creative Director for Atomic Designers company (Human Development and Emerging Technologies). She holds a Masters Degree in Children's Motor Development - Technological Solutions and Energy expenditure on Children, and a Post-Graduate in Exercise and Health.

Marta's main field of research is focused on: Technological and holistic learning systems building and analysis; Renewable Energies sources for Sustainable Development; Assessment tools: biometry; Development & analysis of training methodologies in relation to global and fine mobility. Sustainable Development; Assessment tools: biometry; Development & analysis of training methodologies in relation to global and fine mobility. In her PhD research, Marta aims to show how to create Physical entertainment/educational spaces for children. These spaces also referred to as "playgrounds" will allow children to explore outdoor contexts in natural environments through technological expressions, and contributing to Sustainable development. This way child's educational field can be upgraded using interactive technological devices based on the primordial context of the child's development: the Pretend Play language. This specific architectural design brings children to a reconstruction of the concept of "street culture nature environments" helping them to construct their Cognitive, Emotional, Social and sign brings children to a reconstruction of the concept of "street and sign



brings children to a reconstruction of the concept of "street culture nature environments" helping them to construct their Cognitive, Emotional, Social and Motor development domains. The goals of her PhD are to test a new Theory/Methodology- the emotive Brains theory which is fundament on the relation between child neurological activity, corporality & environment - for exploratory/creative learning and to build new environments/interfaces according to this theory;

### Main research:

- Embodied Interaction Child-Machine:  
 Technological and holistic learning systems building and analysis;
- Development & analysis methodologies in children learning relating to global & fine mobility
  - Child development through motion, physiological, cognitive & social affective domains;
  - Relations between corporality, technologies, environment & childhood development;
  - Development & analysis of methodologies in teacher training for XX-1st child education;

### Alberto Gravimente suit

This suit allows for Children to play on street culture environments - back to nature:

- Child real-time personalized learning through biometry variables;
- Software methods on learning exploratory challenges;
- Social development: shared challenges & corporality proximity;
- Increases energy expenditure - values related to health;
- Environment connection;
- Sustainable development - rechargeable interface: converts motor to electric energy;

For more information on Marta's research please visit <http://atomicdesigners.yolasite.com/>, for some of her most recent work or <http://www.equilibriarte.org/member/4030>, painting field that originates from the scripts created for the children.

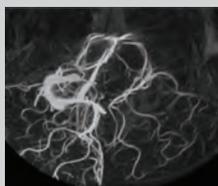
## R&D PROJECT HIGHLIGHT

Cardiovascular Imaging, Modeling and Simulation - SIMCARD - UT Austin /CA/ 0047 /2008

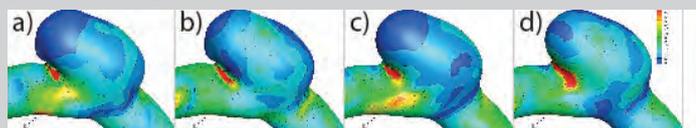
SIMCARD is a highly interdisciplinary project aiming at the development, analysis and simulation of mathematical models of the cardiovascular system. It involves large-scale computer simulations and demands a collective expertise and a close connection between mathematics, scientific computing and clinical experiments, to work on medical imaging and numerical simulations of complex bio-engineering problems.

Around one year ago, project SIMCARD formally started, bringing together the expertise from both Portuguese universities (IST, FEUP, FML) and UT-Austin (Chandrajit Bajaj and Tom J.R. Hughes research teams at ICES).

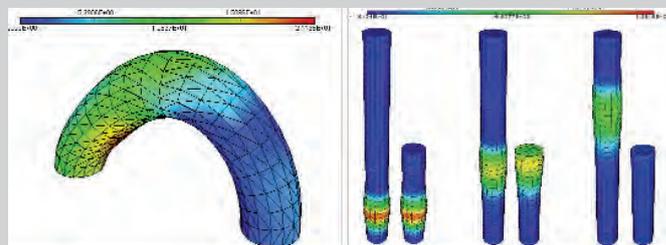
This first stent of the project has been focused on medical image analysis and virtual model reconstruction together with patient specific CFD simulations of cerebral aneurysms and fluid-structure interaction. The project has joined mathematicians and clinicians, helping to broaden the understanding of respective fields, together with their goals, difficulties and potentials.



Rotational CTA of cerebral vasculature (top); detail of reconstructed model of aneurysm (bottom)



WSS for two different geometry definitions (a, b and c, d) and constitutive models for the blood (a, c Newtonian and b, d generalized Newtonian models)



FSI for idealized geometries of a curved and straight vessel with boundary conditions implemented as 1D network. WSS map is shown

One of the greatest challenges in performing simulations from clinical data is an inherent unquantifiable error that is carried through in the analysis from the earliest stage. Noise and flow artefacts in the medical images and clinical measurements lead to geometric models that contain some uncertainty. Patient-specific case studies to quantify relative bounds to this uncertainty have uncovered a dire need for care in the virtual model reconstruction from medical images. In certain cases relative errors in the computed flow field due to geometric uncertainty can be of the order of 50%. These can be further augmented by combining uncertainty in the choice of appropriate constitutive models for the blood and the boundary conditions. In the case of aneurysms, the uncertainty due to the virtual model definition is comparable to that when choosing different models for the non-Newtonian behavior of blood. Short term advances in this topic include the formation of a data base of patient-specific studies and fluid-structure studies on aneurysms. A postdoctoral position is currently opened for the duration of one year in conjunction with this project.

by Adélia Sequeira

## COLAB IN MARCH:

- **FUTURÁLIA** – March 10th to 13th – Lisbon, Portugal - For information on the event please visit <http://www.avi-daetuaofuturalia.com/>.
- **SXSW (INTERACTIVE, MUSIC AND FILM)** – March 12th to March 21st – Austin, Texas - For more information please visit [www.sxsw.com](http://www.sxsw.com). **FUTURE PLACES@SXSW** – March 13th – Austin, Texas
- **2ND UTEN TRAINING WEEK 2010** – March 15th to 19th – New University of Lisbon (UNL), Lisbon, Portugal – For more information visit <http://utenportugal.org/>.
- **2ND INTERNATIONAL CONFERENCE ON GAMES AND VIRTUAL WORLDS FOR SERIOUS APPLICATIONS CONFERENCE** – March 25th and 26th – Braga, Portugal – For more information please visit <http://www.vsgames2010.org/>.

## COLAB News Center

### Kathleen Tyner (UT Austin) delivers keynote speech at 2nd International Conference on Games and Virtual Worlds for Serious Games Applications

University of Texas faculty Kathleen Tyner will deliver a keynote speech titled "An Array of Play: Games for Learning" at the conference. The keynote addresses a diverse array of topics including game design and modeling, augmented reality, mobile games, and education, and will take place on March 25 and 26 at the University of Minho. Tyner will speak on how social institutions and businesses are creating innovative models to integrate games and virtual worlds into their strategies for serving the public. Tyner will speak on how social institutions and businesses are creating innovative models to integrate games and virtual worlds into their strategies for serving the public.



### DOMINGOS FERREIRA begins Post-Doc at UT Austin



Dr. Domingos Ferreira and his wife Dr. Maria Fernanda Fernandes of the New University of Lisbon moved their family to Austin in February and will be staying for a year as Post-doctorate Research Fellows in Digital Media. Dr. Ferreira studies marketing and online buyer behavior, focusing on business-to-business relationships. At UT, he is working with Dr. Isabella Cunningham of the Department of Advertising. Dr. Fernandes, a researcher at the Centro de Investigação e Desenvolvimento

de Estudos e Sociedade of the New University of Lisbon, focuses on political discourse analysis and she is developing her research with Dr. Roderick Hart, the Dean of the College of Communication.

### MÓNICA MENDES visits Austin to attend SXSW Interactive

Digital Media Program PhD student Mónica Mendes arrives March 8 in Austin to attend the SXSW Interactive festival and to meet with researchers and faculty at UT Austin. Mendes is developing research on video for artistic experimentation in interactive installations, to encourage the protection of forests through an online network. The project is titled Real-Time Video Interactive Systems for Sustainability, or RTiVISS.



## REGISTRATION IS NOW OPEN for 2010 Online Journalism Symposium (in Austin, Texas)

The 11th annual International Symposium on Online Journalism will take place on April 23rd and 24th at the AT&T Executive Education and Conference Center, a building on the south edge of the University of Texas campus. Registration to attend is now open to all at <http://online.journalism.utexas.edu/> (\$25 for faculty and students; \$50 for non faculty or students).

The symposium will cover topics such as: "How journalism is adapting to the new tablet computers, e-readers and smartphones", "Strategies to survive the digital era", "What are the innovations in the journalism scholarship/profession today", "How the old passive audience of mass media is becoming the new active communities of online media", among others.

For more information, please visit the official site at <http://online.journalism.utexas.edu/>.



11th International Symposium on  
Online Journalism  
April 23-24, 2010  
AT&T Conference Center  
Registration open!

## ■ ISABEL CUNHA is at UT Austin developing a Digital Media Project

Isabel Cunha is at the University of Texas at Austin, developing research work in the Digital Media field. The work will be done during sabbatical leave at the Department of Radio, Film and Television, from March to June 2010, as part of the Digital Media Project under the UT Austin | Portugal (UT/Austin/CD/0016/2008).

The stay has the following overriding principles:

1. Collect bibliography on the Digital Media, taking into account the production of content.
2. Explore new methods and software applied to the analysis of Digital Media.
3. Mapping studies on production of fiction targeted to various multimedia platforms.
4. Understanding how the genre fiction products, produced for use on multiple platforms (TV, DVD, games, mobile, Internet) may be used for educational purposes, including for the promotion of digital literacy and the deepening of citizenship.

During her stay in Austin, Isabel Cunha will also be developing the following activities under the development of Project UT/Austin/CD/0016/2008:

1. An initial comparative approach to the material collected in Portugal and in Texas, through questionnaires for consumption and use of media and the Internet.
2. Contribute to the identification, through analysis of questionnaires in Portugal and in Texas, the possible patterns of consumption and use of media and the Internet
3. Based on the same questionnaires to identify the potential respondents' expectations regarding the provision of new digital content.

## ■ DEREK LACKAFF visits Lisbon and Porto to give lecture "Motivation and Mobilization: Social Network Sites and Social Research"

Derek Lackaff, a UT-based postdoctoral fellow with Digital Media, visited the Porto and FCT campuses in March. In Porto and in Lisbon, Lackaff delivered a lecture titled "Motivation and Mobilization: Social Network Sites and Social Research." Social network sites (SNSs) such as Facebook and MySpace have emerged as one of the most important platforms for online social interaction. These sites have exhibited astonishing convergence as they assimilate functions from other more specialized media platforms such as media sharing, blogging, and gaming. At the macro level, SNSs have played a significant role in many recent collective actions, ranging from mainstream political campaigns to pro-democracy protests within repressive regimes. At the micro or personal level, a range of factors impact behavior. Lackaff presented his research that examines the antecedents and consequences of SNS behavior, with a particular focus on social scientific explanations of individual motivation and the mobilization of network resources.

Lively discussions following the lectures provided an opportunity to meet and interact with the doctoral students in the Digital Media program.

Lackaff also initiated a semester-long Communication Theory course in Porto. The course will provide an introduction to the theoretical foundations of the communication field, and help prepare doctoral students to participate in the international community of communication scholarship. A range of theories will be surveyed, with a focus on mass and mediated communication. The hope is that this seminar will expose students to some of the broad theoretical and conceptual currents in the field, and will inform their research choices and directions. Following this initial in-person seminar, Lackaff will instruct the course via video-conference until it concludes in June.

## ■ THE UTEN CORNER S&T COMMERCIALISATION

Universidade Nova de Lisboa welcomes 2nd UTEN Training Week 2010

UTEN Portugal is organizing the 2nd UTEN Training Week 2010, which will take place between 15 and 19 March, at the Universidade Nova de Lisboa (UNL). The training week is dedicated to "Spin-offs, Venture Creation and Business Intelligence" and is being organized with the support of UTEN@Austin and UNL. The event's main speaker will be Brett Cornwell, director of Commercialization Services for the Office of Technology Commercialization at The Texas A&M University System, and the person responsible for the New Ventures Division, which provides services to support the commercialization of technologies from the Texas A&M University System and the establishment of



start-up companies based on Texas A&M technology.

Simultaneously, there will be two other events in which Brett Cornwell will also be participating. On 16 March, Brett Cornwell will speak at the an Entrepreneurship Masterclass at the Reitoria (Dean's Office) of UNL, and, on 17 March, at the workshop entitled "How to create a business in the veterinary science field", on entrepreneurship and business management in the field of veterinary science, developed by the Faculty of Veteri-

nary Medicine of the Technical University of Lisbon, in close collaboration with INOVISA - Association for Business Innovation and Development.

**UTEN** Portugal  
University Technology Enterprise Network

## ■ FIVE UTEN INTERNS in Texas During February-March

**Jorge Figueira**, DITS - Divisão de Inovação e Transferências do Saber (GATS.UC), Technology Transfer Office, Universidade de Coimbra visited UTEN Austin and Texas for two weeks in March to better understand and build partnerships with different Texas-based entities and to prepare for selecting the best Intern from DITS to apply to the 2010 FCT Call for Internships. During his stay, Jorge visited with "old" Texas friends like Laura Kilcrease, Founding Director of Triton ventures and made new acquaintances like Susan Davenport, VP Business Retention, Austin's Chamber of Commerce and Joe Picken, Executive Director, Institute for Innovation and Entrepreneurship, School of Management and Bob Robb, Associate Vice President for Technology Commercialization, at UT-Dallas (<http://www.utdallas.edu/otc>). Jorge's visit also provided the opportunity for all the current Texas Interns to visit with the UTEN Austin Team at the IC<sup>2</sup> Institute, UT-Austin to discuss plans and activities for UTEN for 2010.



Bob Robb, Associate Vice President for Technology Commercialization, at UT-Dallas provides an overview of key components of UT Dallas' ecosystem for university-based technology transfer and commercialization with Jorge Figueira, Technology Transfer Office, Universidade de Coimbra and Raquel Luísa Santos de Jesus Sá, Project Manager, University of Trás-os-Montes e Alto Douro.

The other current Portuguese UTEN Texas Interns are Carla Mascarenhas, Alexandra Marques, Filipe Castro, and Raquel Luísa Santos de Jesus Sá .

**Carla Mascarenhas**, University de Trás-os-Montes e Alto Douro, completed her two-month internship at South Texas Technology Management (STTM) ([www.utsystem.edu/sttm/index.shtml](http://www.utsystem.edu/sttm/index.shtml)) on March 5, 2010. During her internship Carla focused her training and learning on international TT licensing and negotiation. Carla's mentor was John Fritz (see February CoLab Newsletter), STTM Technology Licensing Associate. Carla also worked on evaluation and validation of Invention Disclosure Forms as well as research on patent applications and technology marketing. She also worked on Non Confidential Descriptions with U.S.-based enterprises and attended meetings with STTM investigators and participated in conference calls between University of Texas researchers and U.S. companies. During her Internship Carla also worked with Cliff Zintgraff (UTEN Manager Technology Development, UTEN Austin) conducting RapidScreen and MarketLook assessments and market-based interviews with interested US-based companies on Alto Duro technologies.

**Dr. Alexandra Marques**, Science and Technology Manager at the University of Algarve's TTO, Algarve Regional Centre for Innovation (CRIA), is currently completing her 2-month internship at STTM. The main goals for her internship are learning about and practicing technology

evaluation and international commercialization. Alexandra is working closely with Dr. Christine Burke at STTM on the commercialization of several important technologies that includes visits to rapid prototype facilities at UT-Pan Am in South Texas and the marine science facilities of UT-Austin in Port Aransas and Texas A&M at Corpus Christi. Alexandra also has the opportunity to attend important conferences on technology transfer which will take place in Texas during the period of her internship at STTM. Alexandra is also working with Cliff Zintgraff on technology and market assessments of University of Algarve technologies including establishing contacts with US companies to assess the technologies international market potential.

**Filipe Castro**, University of Porto is conducting his 2 month Internship at the Office of Technology Commercialization, The University of Texas at Austin [[www.otc.utexas.edu](http://www.otc.utexas.edu)]. Filipe's internship, is being mentored by Max Green, Licensing Specialist is focused on learning about UT's OTC methodologies and procedures that were introduced to him by Rick Friedman, Associate Director and Max Green during the Technology Licensing Workshop they gave at UPIN, December 17-18, 2009. Filipe is also working with Heath Naquin, Manager Technology Development, UTEN Austin on several technologies from the University of Porto. During March Filipe will also attend the WBT Showcase in Arlington, Texas <http://www.>



Max Green and Les Nichols, Licensing Specialists, Office of Technology Commercialization, The University of Texas at Austin with Filipe Castro, University of Porto (Center).

showcasing the one of the largest collections of vetted and mentored companies and technologies emanating from top universities, labs, research institutions, and the private sector from across the U.S. and around the globe.

**Raquel Luísa Santos de Jesus Sá**, Project Manager in University of Trás-os-Montes e Alto Douro visited UTEN Austin for two-weeks primarily working at IC<sup>2</sup> Institute and the Austin Technology Incubator (ATI), The University of Texas at Austin (<http://www.ati.utexas.edu/>). The main objective of Raquel's internship was to interview incubator experts and participants and to observe operations to get a strategic and operational overview of ATI to help prepare UTAD as the university plans for and implements its incubator and regional strategy.

# ONGOING OPPORTUNITIES

## Digital Media:

### 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.

## Advanced Computing:

### POSTDOCTORAL POSITION IN ADVANCED COMPUTING/ COMPUTATIONAL BIOMATHEMATICS

A Postdoc position is available at CEMAT- Center for Mathematics and its Applications, IST (Lisbon, Portugal), in the framework of the project "SIMCARD - Cardiovascular Imaging, Modeling and Simulation" UTAustin/CA/0047/2008, in collaboration with the University of Texas at Austin.

This position is funded by the Portuguese Science Foundation, FCT. The successful candidate will interact with national and international collaborators, in particular at UT Austin, and will be part of an integrated team led by Prof. Adélia Sequeira.

Research will be focused on the computational modeling of cerebral aneurysm progression, in particular on the development of computational codes for realistic vascular wall biomechanics and fluid-solid interaction models.

Suitable candidates should hold a PhD in applied mathematics, physics, or engineering, with a strong background in computational mechanics, biomechanical problems and numerical methods (e.g. finite elements).

Excellent programming skills are required and experience in biomedical research is highly desired.

Suitable candidates should hold a PhD in applied mathematics, physics, or engineering, with a strong background in computational mechanics, biomechanical problems and numerical methods (e.g. finite elements). Excellent programming skills are required and experience in biomedical research is highly desired.

The position is initially available for one year with the possibility of extension to two or three years, pending availability of external funding. There are no teaching duties associated to this position.

To ensure full consideration, interested candidates should send by email ([adelia.sequeira@math.ist.utl.pt](mailto:adelia.sequeira@math.ist.utl.pt)) a CV, a statement of purpose describing relevant expertise and research interests, and three letters of recommendation (with contacts information: e-mail addresses and telephone numbers). The same email address may be used for further information.

Deadline for applications: April 30th, 2010.

## Useful links

[www.utaustinportugal.org](http://www.utaustinportugal.org)

[www.fct.mctes.pt](http://www.fct.mctes.pt)

[www.utexas.edu](http://www.utexas.edu)

[www.ic2.org](http://www.ic2.org)

[www.ati.utexas.edu](http://www.ati.utexas.edu)

[www.austin-chamber.org](http://www.austin-chamber.org)

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

[www.utenportugal.org](http://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](mailto:sofia.santos@fct.mctes.pt).

UT Austin | Portugal

INTERNATIONAL COLLABORATORY FOR EMERGING TECHNOLOGIES, CoLAB

THE UNIVERSITY OF  
**TEXAS**  
AT AUSTIN

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MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR