

UT Austin | Portugal INTERNATIONAL COLLABORATORY FOR EMERGING TECHNOLOGIES, CoLab



STUDENT HIGHLIGHT

Paulo Rosa, New University of Lisbon, Digital Media PhD Program
Dynamic Animation of Surfaces using Chemical Computation

In the early nineties, Mark Weiser introduced the concept of Ubiquitous Computing in Computer Science. According to Weiser [1, 2], computers required too much attention from the user, drawing his focus from the tasks at hand. Instead of being the center of attention, computers should be so natural that they would vanish into the physical human environment. Within this vision, computers and other digital technologies are integrated seamlessly into the natural human environment, hidden from our senses whenever not used or needed. Computers become not only truly pervasive but also effectively invisible and unobtrusive to the user.



With the advent of Printable Electronics, this ideal became closer to a reality. By combining common printing techniques, such as offset printing, flexography, or inkjet printing with conductive electronic inks, it became possible not only to mass-produce extremely thin, flexible and cost effective electronic circuits, but also to introduce electronic functionality in products where it was previously unavailable. In this way, we are witnessing the breakthrough of a completely new set of products where circuit components, such as thin film transistors or resistors, are printed directly in almost any type of organic or inorganic substrates, thereby becoming an integrating part of the material itself.

If we look around, it is already possible to point out numerous devices that are the first indicators of this new technological revolution. Mobile phones and smart phones with internet capabilities, electronic labels and RFID tags, miniature cameras and flexible displays are just some examples of the technologies currently available, driving us towards the "post-PC era". However, looking at these popularized ubiquitous computing devices, it is possible to verify that, rather than being invisible or unobtrusive, they are extremely visible and present. Hence, in order to achieve Weiser's vision of Ubiquitous Computing in its true extension, it becomes fundamentally important to explore new and innovative approaches to link the physical and the digital worlds.

The aim of Paulo's research work is to explore and develop innovative dynamic display surfaces through the use of the concepts behind printable electronics and chemical computation (i.e. the application of principles taken from chemistry for programming devices). It is expected that this approach will enable people to chemically program dynamically animated displays fully integrated in commonly used substrates such as paper, plastic, glass, ceramics, among others.

[1] Weiser, M. (1991): "The Computer for the Twenty-First Century". *Scientific American*, 265 (3), pp. 94-104.

[2] Weiser, M. (1994): "The world is not a desktop". *ACM Interactions*, 1 (1), pp. 7-8.

R&D PROJECT HIGHLIGHT

Project: REACTION – Retrieval, Extraction and Aggregation Computing Technology for Integrating and Organizing News

Principal Investigator: Mário Jorge Costa Gaspar da Silva

REACTION (Retrieval, Extraction and Aggregation Computing Technology for Integrating and Organizing News) is an initiative for developing a computational journalism platform, mostly for use with the Portuguese language. The project was initiated in October 2010 and it has now produced the first demonstrators to be showcased at an upcoming CoLab event. Some of the developed mining resources are already available from the project website at <http://xldb.fc.ul.pt/wiki/Reaction>.

News is no longer simply produced and consumed, but instead continually evolves over time as a cooperative dialog between news outlets and the public at large. News presentation must fundamentally reflect this, providing anytime organization of the latest events, conveying how story elements developed over time, and integrating the story in the larger world context. In short, the days of simple online aggregation are over; the world has already moved on. While the idea of journalists using computers as information discovery tools goes back several decades, never before has computation been understood to be so tightly integrated with the core of journalistic practice. Journalistic excellence today requires advanced data mining and search technologies, together with novel web services and integrative mashups.

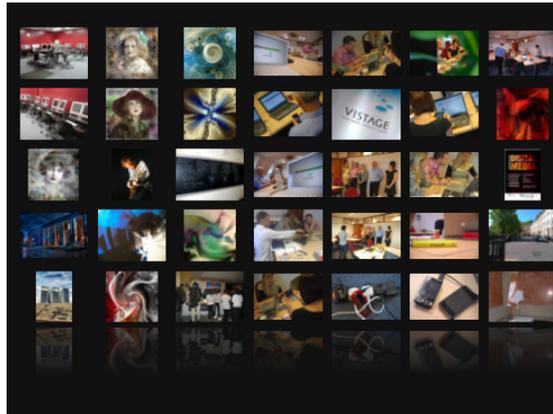
This research team identifies the following important challenges facing the field:

- Automatic analysis of content, including news, blogs, micro-blogs, comments: detecting and resolving references to named entities (e.g., public figures); tracking these entities and events involving them; assessing quality (e.g., readability); inferring polarity (e.g., sentiment); detecting cases and patterns of re-use (e.g., via “memes” or larger units of similar text) and information flow.
- Automatic analysis of explicit and implicit social networks: inferring implicit social networks based on information flow patterns involving content producers and

consumers; discovering communities; inferring authority and credibility of sources; finding experts; identifying influential community members.

- Design of rich visualization and interaction interfaces for presenting dynamic, personalized news and learning about implicit relationships between news stories and reader communities.

- Case-study evaluation of developed computational journalism methodology in a production setting, to provide a critical analysis of practical impact on newsroom quality, efficiency, and economics (cost and revenue).



The REACTION team researches new tools for providing greater automation in news gathering, analysis, and delivery, while respecting practical constraints of news producers and consumers. They emphasize decomposition of stories into finer-grained elements and discovery of implicit relations between them and also emphasize the relationship between news and social

networks, both explicit and implicit, which underlie the news and significantly shape its content, quality, and authority. Hands-on experience in the newsroom will enable practitioners to innovate current practice of news production and identify important avenues for future research in computational journalism.

REACTION is organized in seven complementary research tasks which jointly address the four problem areas identified above: (1) Mining Resources (lead: Paula Carvalho, LASIGE); (2) Entity and Event Tracking (lead: Francisco Couto, LASIGE); (3) Web Community Sensing (lead: Eduarda Mendes Rodrigues, LIACC); (4) Tracking Information Flow (lead: Mathew Lease, UTA); (5) Interaction and Personalization (lead: Luis Francisco-Revilla, UTA); (6) Query and Visualization (lead: Luís Sarmiento, SAPO/LIACC); (7) Computational Newsroom (lead: António Granado, CIMJ).

Design and Computation Series

Digital Media lecture series bring prominent designers to Lisbon

UT Austin | Portugal, in collaboration with UNL and IST, is proud to announce the commencement of the Design & Computation series on April 11, 2011 with speaker **Yacov, a professor of Theater and Dance at UT**. Sharir presented a talk titled Identity, the Post-Human Body & Digital Practices, discussing his work with students and faculty members from UNL and IST.

The Design & Computation series is a speaker series addressing computer-based design innovations, particularly focused on game environments and interactivity. In addition to Yacov, the series has confirmed an all-star lineup of speakers who will give day talks to students and the public. Upcoming speakers include **renowned game**

designer Ernest Adams, and the highly respected and innovative **Dr. Anthony Brooks of Aalborg University**, known for his research project SoundScapes. Other speakers will include **Panos Markopoulos of Eindhoven University of Technology**, as well as **UT faculty members Dan Olsen and Peter Hall**, who will be presenting together on mapping and design. Both Ernest and Dan & Peter will also be presenting workshops on their topics. The Design & Computation series is designed to foster creativity and innovation within some of Portugal's best digital media programs.

For a list of speakers, dates, locations and topics, please see our website on the series here: http://utaustinportugal.org/news/design_and_computation_series.

■ CoLab Mathematics Summer School and Workshop

The CoLab Mathematics Summer School and Workshop is a yearly event that aims at bringing together Ph.D. students and junior faculty with well-known experts in the several areas of mathematics. **This event will be held in the Mathematics Department of Instituto Superior Técnico in Lisbon, from June 13-24, 2011.**

The school will be held between June 13-17, 2011. We have chosen the topic Aubry Mather Theory and Optimal Transport. The faculty members for this school, L. Ambrosio, P. Bernard, Y. Brenier, and A. Figalli, are internationally known experts in these fields. We believe that their courses will be extremely useful for Ph.D. students, postdocs and established researchers who wish to broaden their knowledge in this very active area of research.

The Nonlinear PDEs workshop aims at bringing together researchers in several areas of nonlinear partial differential equations and its applications, and will be held in the week of June 20-24.

This event is also part of the program of the Portuguese International Center for Mathematics (CIM).

Financial support for students and young researchers may be available. Please when registering fill the appropriate box. **The registration is free and will be open until April 30th, 2011:** <http://math.utaustinportugal.org/summer011/registration.php>.

■ Workshop on GPU Programming for Scientific Applications 6-8 July 2011, University of Coimbra

Do you want to learn how to develop TeraFlop-class applications? Is your 12-core machine lacking the ability to run your scientific applications? Come and learn how to develop high-performance applications using the latest GPUs in the market! This unique workshop meets with world-class experts directly from **NVIDIA** and the **University of Texas at Austin** who give you hands-on help in understanding and learning about the future of high-performance computing.

The University of Coimbra invites you to participate in a great workshop with **a thrilling Programming Competition!** Register until 31st May at <http://gpu.dei.uc.pt>

■ International Symposium on Online Journalism Brings Scholars, Students, and Media Professionals to Austin

The 12th International Symposium on Online Journalism took place in Austin from April 1-2, attracting scholars, media executives, and journalists from around the world. A program of the Knight Chair in Journalism, the UNESCO Chair in Communication, and the Knight Center for Journalism in the Americas at the University of Texas at Austin, the meeting commenced with a welcome from organizer Rosental Alves, head of the Knight Center at UT and an active member of the UT Austin-Portugal faculty. This year's gathering featured keynote speeches from Vivian Schiller of the US National Public Radio network, Meredith Artley, vice president and managing editor of news site CNN.com, and Madanmohan Rao, editor of The Asia Pacific Internet Handbook in India.

Research panels at the Symposium addressed issues including nonprofit journalism, news and mobile devices, the practice of charging users for news content, and social networking sites. Presenters came from the University of Coimbra, the University of Southern California, the University of Tampere, Finland, UT Austin, and many other educational institutions. In addition, representatives of major media companies such as the New York Times, Google, BBC News, and

Grupo Reforma of Mexico served on panels, offering commercial and nonprofit news perspectives. For more information on the Symposium, please see <http://online.journalism.utexas.edu/>.

Cíntia Mendonça Morais, a UT Austin Knight Center for Journalism in the Americas intern and Prémio ZON Criatividade em Multimédia winner, observed:

My first impression of the event was that it was really well organized; the Knight Center for Journalism in the Americas team did a great job. They worked hard to provide a good experience during the event and worked tirelessly down to the wire in order to surprise the participants with the launching of a new journal on the opening session.

As it should be, the themes of the conferences were very current and focused on critical issues for online journalism nowadays. I enjoyed the opportunity to speak with some of the speakers during the breaks and I found particularly interesting the talks about engaging communities with the news.

Digital Media Students visit Austin

UT Austin has hosted several exploratory visitors during the past month. Below, some of the visitors describe their experiences.

Jasmina Stoyanova of U.Porto:



As a PhD student at UT Austin Portugal Digital Media program I spent ten days visiting UT Austin. The exploratory visit program allows students to meet with professors, visit classes and explore future research opportunities. One of the most valuable features of the program encourages students to meet and discuss their projects with UT Austin professors. Students can receive advice on their future research and get acquainted with the overall study program.

Before I left Portugal I scheduled several meetings with local advisors who were interested in discussing my research project. Talking to professors, I received some interesting input and was referred to other researchers working in the field of advertising and augmented reality, my main area of interest. Besides the meetings I was invited to attend a few classes and lectures where I observed the study process and was able to exchange ideas with other students and researchers.

In addition, I also participated in The Sustainable Business Summit where I was able to observe lectures from speakers from companies like IBM, AEP, Whole Foods Market, and other major companies. To me, the exploratory visit was a unique experience, building toward the development of a better research approach and allowing me to broaden my perspective on future studies.

Carlos Figueiredo of U. Porto:

Regarding my ten-day visit to the UT (March 24 to April 2), I stress the idea that "a problem is also an opportunity". This was one of the messages I kept after a few meetings with UT professors and researchers. Regarding those meetings I appreciate the availability, interest and the sharing of ideas with Matthew Lease, Sharon Strover, Unmil Karadkar, Yan Zhang, Luís Francisco Revilla and Wenhong Chen. This opportunity allowed me to discuss new sides for the development of my research project, hypothesis elimination and the listing of new options for results. This was equally an opportunity to select co-advisors and to analyze cooperation possibilities for research work. As for the classes I attended, and the course syllabi that I've looked through, I perceived that at UT, difficulty means effort instead of ambiguity.



They were ten intense days, with classes, reunions, dives into bibliographic consultation, but also site seeing, Texan music, and get-togethers with some "tugas" (Portuguese

taking part in the doctoral program Portugal-UT) and ISDT 2010 colleagues. I hope to go back, for a longer period of time, and explore some of the research opportunities available at UT, mostly also to interact with the immense human and intellectual mass that 'gravitates' there.

Carlos Oliveira of the New University of Lisbon:



Recently, the archive became a pivotal instance for varied choreographic composition methodologies and for many debates around and about the performing arts. Within this frame, I'm developing a research-creation inquiry on the relations between somatic and artefactual archives in the performance of artistic composition. For that I'm being guided by the empiricist question of

"What can an archive do?" and following a transcendental approach for the creation of movement-thoughts across performance, theory and the digital.

In the end of March, I visited UT Austin in order to get acquainted with the campus, its colleges and faculties. It was very helpful to meet doctoral students from the UT Austin | Portugal Program, who already are taking courses and doing research in different colleges, in order to more easily discover the facilities and some professors.

Of particular interest for my own research was the department of Theater and Dance at the Fine Arts College, and more specifically the Performance as Public Practice faculty. Though this is a department which is not originally related to the Austin | Portugal Program, and hence not prepared to host research relationships with such students, the interest in establishing synergies was mutual and negotiations are taking place.

Tiago Gama Rocha:

The opportunity to go to Austin was crucial to my research, especially in that it gave me the chance to participate in the International Symposium on Online Journalism. There I was able to test my research design by engaging in conversation with professors and fellow researchers and also to see first-hand the more recent advances in the field. It was also very important to talk with a few professors and get important feedback and counseling on the work I'm developing. I hope this is just the beginning of a lasting partnership.



■ UTEN CORNER

UIDP Conference attended by UTEN/Portuguese delegation

April 3-6, 2011

The University Industry Demonstration Partnership ("UIDP"), an initiative of the United States National Academy of Sciences, hosted a UTEN/Portuguese delegation of nine vice rectors, technology transfer officers, and UTEN staff from April 3-6, 2011. The conference was held at the Pfizer World R&D Headquarters in La Jolla, California, and included representatives from major universities from across the US as well as senior executives from several major corporations in the US and globally. The purpose of the conference was to facilitate joint initiatives designed to address issues faced in university/industry collaborations including contract accords, regulation, negotiations, and common understanding of the unique cultures and points of view involved. Joint teams were formed and worked together on common issues in order to foster and develop strong working relationships and institutional ties that facilitate collaboration and increase joint projects.

The delegation was also invited to a number of exclusive meetings and events with consultants, industry representatives, US government agencies, and universities interested

in exploring international partnerships. Pfizer also hosted the delegation for a private tour of its facilities and, as a special treat, the Delegation was invited for a session on biomimicry, a leading-edge initiative of the San Diego Zoo and designed to incorporate lessons learned from nature to enhance product development, scientific discovery, and R&D in a broad range of disciplines.



The delegation returned home with a broad range of proposed activities and invitations for follow-on visits and potential collaborations. The delegation included José Manuel Mendonça, president of INESC Porto and scientific director of UTEN Portugal, Emídio Gomes, vicerector of University of Porto, João Barroso prorector and José Bulas Cruz, former vicerector of University of Trás-os-montes e Alto Douro, Vítor Gonçalves, vice rector of Technical University of Lisbon, Sérgio Machado Jesus, vicerector and Sofia Vairinho, TTO of University of Algarve, Dina Pereira, TTO of University of Beira Interior, and Eli D. Mercer, manager of technology transfer and commercialization at theIC2 Institute, The University of Texas at Austin.

University Visits in California for UTEN/Portuguese delegation

April 7-8, 2011



On April 7 and 8, 2011, the UTEN/Portuguese delegation was generously invited to visit a number of academic and research units as well as administrative units related to international partnerships at three premier California universities: University of California Irvine, University of Southern California, and University of California San

Diego. Visits at each university proved to be very useful and the delegation was able to take part in a number of valuable activities including an entrepreneurs forum at UC Irvine, a visit to the Office of Technology Commercialization at USC, and a visit to the School of Engineering at UCSD. Each of the hosts arranged meetings with senior university officials as well as professors and administrators. UTEN looks forward to following up and continuing the dialogue with these institutions and looks forward to exploring future avenues for collaboration and exchange.

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Leaders Roundtable#1 Focused on Benchmarking Best Practices on Managing Technology Incubators

On March 28, 2011, UTEN Portugal and the Instituto Pedro Nunes (IPN) hosted Leaders Roundtable#1. International experts were Bart Bohn, Director of Austin Technology Incubator (ATI) IT and Wireless operations at The University of Texas at Austin, and Barbara Carrier, Director, Project Olympus, Carnegie Mellon University.

The theme for the first Leaders Roundtable was "Benchmarking Best Practices on Managing Technology Incubators." The objective was to generate active discussion among the international experts and roundtable participants which included directors and senior staff of TTOs (Technology Transfer Offices) and technology incubators. Main discussion points included (1) how incubators can best attain financial self-sustainability, (2) establishing and maintaining meaningful connections with industry, (3) the goal of incubating experienced entrepreneurial and

business talent as well as companies to help build a viable entrepreneurship mentoring network; (4) building, sustaining, and selecting a pipeline of quality technology companies to incubate; (5) and helping to foster a university and regional innovation ecosystem. It was emphasized that with all its success, IPN (as other successful incubators) is only a part of a much larger innovation/entrepreneurial ecosystem which is anchored by, in the case of IPN, the Applied Research Labs and other talent and resources at the University of Coimbra and surrounding community. "Putting strategy into practice and involving all key stakeholders" was a key subject of this roundtable that also discussed the challenges of US on-shoring and in particular



the financial and legal realities for US start-ups. Metrics for success for incubation are complex and can include size and growth of graduating companies, direct and indirect jobs created, external financing raised, investment and follow-on funding, company acquisitions, and internationalization.

Two additional "Leaders Roundtables" are planned:

1. Roundtable #2 on May 14-15 at the University of Porto focused on Benchmarking Best Practices on Managing an Effective IT Office
2. Roundtable #3 on May 23-24 at IMM, School of Medicine, University of Lisbon focused on Benchmarking Best Practices on International S&T Commercialization.

The main objective of these roundtables is to deepen knowledge and enhance networking activities among the more experienced TTOs, entrepreneurs, and related stakeholders. These events are planned to address specific issues and challenges facing Portuguese experts with regards to building sustainable relations with Portuguese industry and international technology transfer and commercialization.



Applications for ZON Creativity in Multimedia Award 2011 now open Applications at www.zon.pt/premio until 7th November 2011

This is one of the largest monetary prizes awarded in multidisciplinary national competitions, reaching a total of 200.000€, divided into three categories: Contents and Multimedia Applications, Digital Animation and Short Films. The prize also includes fellowships at UT Austin.

Categories

Contents and Multimedia Applications

Contents and Multimedia Applications refer to the interface that allows user engagement within on and offline processes. These are based on either paid or unpaid business models that must be integrated with: Multimedia Middleware; Operative Systems; Distribution Networks; Security Systems; Consumer Devices (television, computer, mobile, video consoles). All of these must exist within a multimedia ecosystem, which includes the areas of: Passive or interactive entertainment (over the top videos, contents supported by digital narratives and on/offline games); Enabling Services (e-Education, e-Government and e-Health); Generic Services (security and monitoring); E-Business in general.

Digital Animation

Digital Animation must be applied to communication and entertainment media, passive or interactive, namely cinema advertising and video games. These must encompass techniques that derive from the conversions between computer technologies, graphic design and animation by means of the creation of objects exclusively based on a synthesis of images or by means of digital imagery integration that are produced in cinematic graphic environment and traditional video graphics.

Short Films

Short films fall under the fictional cinematographic category. The film must consist of real images or animation that expresses a concise idea within itself. The piece must not exceed 10 minutes including the final credits.



The ZON Creativity in Multimedia Award

Launched in 2008 under a partnership between ZON Multimedia, FCT (Foundation for Science and Technology) and ICA (Institute of Cinema and Audiovisual) this award has proved to be a real success. In total, the three editions of this competition attracted the participation of around 500 different projects. The aim is to continue to foster innovation and reward excellence, contributing to the development of multimedia and audiovisual industries and the digital economy in general in Portugal. ZON also aims

to distinguish works that reflect the values of the company, namely agility, innovation, expertise, proximity and diversity.

The ZON award is annual and is open to individuals and / or organizations in general but is particularly geared to the university population, young graduates and small start-ups in the multimedia and audiovisual area. The initiative is also open to multinational teams if at least one of the elements is Portuguese, and educational institutions in partnership with students.

Previous editions of the award represented a strong stimulus for the production of high quality content and made a unique contribution in the discovery and dissemination of new talent. Nuno Rocha was one of them. His short film 3X3 was awarded the Grand Prize in 2008, having won in addition to 100.000€, the opportunity to launch his career. His short film was also shown, together with the Oscar winning "Slumdog Millionaire", in Portuguese theaters and was seen by over 150.000 spectators. In 2009, the Lusófona University was the big winner with six slots in the list of finalists and received the Grand Prize with the short film "Romeo and Juliet - The Musical". In 2010 the Grand Prize winner was the videogame Under Siege from Seed Studios, the first national game available for Playstation and the single one worldwide for its strategy type.

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

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