

STUDENT HIGHLIGHT – Diogo Telmo Neves – PhD Thesis: “Separation of Concerns in Advanced Computing”



The focus of Diogo's PhD research work is to raise the abstraction level of parallel programming by developing a new set of programming constructs that promotes a stronger separation of concerns in parallel computing. The idea is to separate the domain specific code from parallelization issues, that is, hidden from programmers (such as scientists) as far as possible the complexity of parallel programming, by identifying parallelization concerns that can be specified as separate modules and investigating the use of different programming paradigms and programming constructs for each concern (e.g., a data flow model to specify data distributions, algorithmic skeletons to address coordination of tasks, etc.).

A framework named YaSkel (figure 1) was already developed as result of Diogo's PhD research activities. YaSkel is based on Skeletons and Software Patterns, it allows parallelizing legacy code seamlessly through the use of the Dependency Injection Pattern. This work was presented by Diogo and his Portuguese supervisor – Professor João Luís Sobral – at ISPDC 2009 (International Symposium on Parallel and Distributed Computing).

At this moment Diogo is spending a semester, from (past) February to July, at the University of Texas at Austin integrated on a research group, which leader is Dr. Keshav Pingali – Diogo's supervisor at UT Austin. During this period Diogo will be focused on his research, besides other tasks he will be working on graph algorithms. One of those algorithms constructs Phylogenetic trees (figure 2) upon a given set of taxa, and was written by Tandy Warnow et al. Despite the main goals will be to apply separation of concerns and to achieve better performance from parallelization of the algorithm, another important goal is to do applied science.

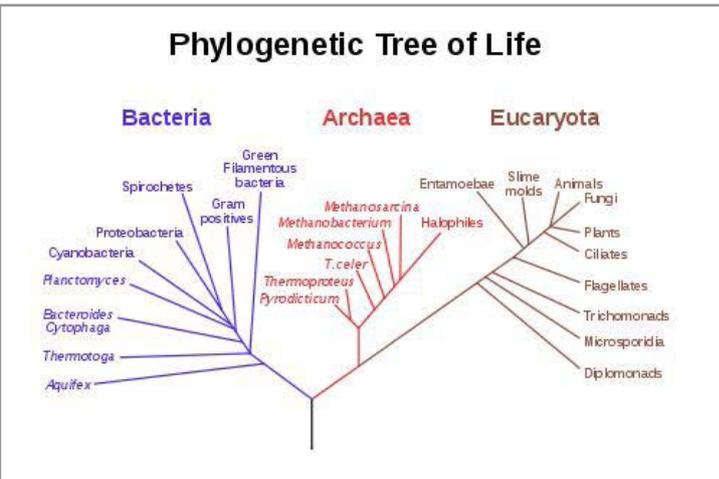
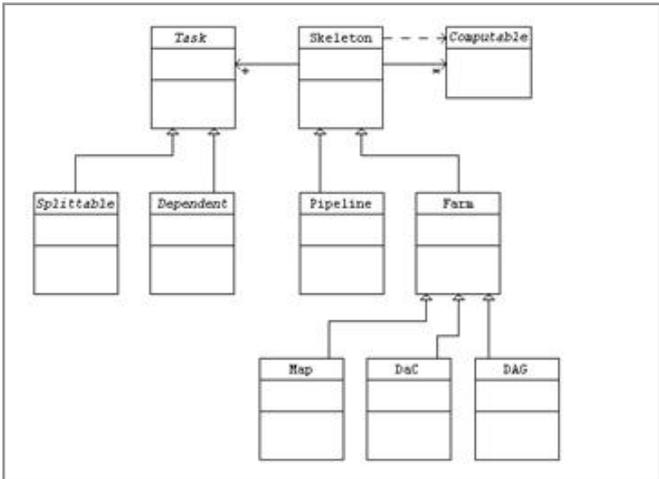


Figure1: YaSkel simplified class diagram.

Figure2: Phylogenetic Tree of Life.

Main Research Interests:

- Parallel and Distributed Systems Programming
- Multicore and High Performance Computing Platforms
- Software Engineering, namely Analysis, Design and Patterns
- Algorithm and Graph Theory
- Bioinformatics

■ R&D PROJECT HIGHLIGHT - Digital inclusion and participation. Comparing the trajectories of digital media use by majority and disadvantaged groups in Portugal and the USA (Digital Media)



Main objectives

1. To enhance digital inclusion and integration:

-By understanding the conditions and patterns of the access, use, appropriations and associated competencies of users and non-users of digital media, with a focus on digitally excluded families and on children and young people;

-By identifying how the national, regional, social and cultural contexts can affect digital inclusion.

2. To promote comparative research and advanced education on digital media

- Working on a transnational and interdisciplinary approach.
- Training young graduate students on how to research digital media issues.
- Promoting participatory methods of research
- Generating educational resources

Year 1

The ongoing qualitative research involves the observation of digital environments and interviews with families, involving different generations and ages (15+). The script adapted to each country includes questions about life history and media uses, focusing on digital media.

In Portugal, two members of 65 families were interviewed, in a total of 130 interviews. In Texas, the interviews were conducted with three generations of 16 families. These families also provided retrospective information from 10 years ago, which allows for a quasi-longitudinal comparison.



The interviews were conducted by about 60 young researchers, who received proper training in post-graduation classes, in each country.

The collected data is now being analyzed by the project team that includes researchers in nine universities, six of them in Portugal, and about 15 PhD students in both countries.

The scientific dissemination of the research has taken place in international congresses (IAMCR, ICA, ECREA), in the form of collective panels and individual papers.

■ COLAB News Center

UT Austin | Portugal Program opens calls for PhD Scholarships

The UT Austin | Portugal Program announces the opening of the PhD Scholarship calls for 2010. The Call opened on April 15th and the deadline for applications is May 15th. All interested candidates must submit their application electronically or by post to the UT Austin | Portugal Program.

The Program is accepting PhD applications in Advanced Digital Media and Mathematics. The Advanced Digital Media applicants can apply to the following subjects: Production of Audiovisual and Interactive Content, Journalism, Technology, Industry, Public and Markets. The Mathematics applicants can apply to the following subjects: Algebra and Number Theory; Analysis and Numerical Analysis; Analysis and Partial Differential Equations; Geometry and Topology; Optimization; Stochastic Processes and Mathematical Finance and Dynamical Systems.

For more information about this call please go to the Program's official website (www.utaustinportugal.org) or send your questions to the directors of your interest area (in English): dm.colab@fct.mctes.pt (for Digital Media) and math.colab@fct.mctes.pt (for Mathematics).

■ **SUMMER INSTITUTE** opens applications for Lisbon courses

DIGITAL MEDIA

The third edition of the Summer Institute in Digital Media is now on the way, with the applications open for the Lisbon courses.

The Lisbon courses will take place at FCSH/UNL (Av. Berna, 26) and will cover the subjects of: Online Journalism (June 21st to July 2nd), with Rosental Alves, Interactive Documentary (June 14th to July 2nd), led by Karen Kocher and The New Entertainment Marketplace (June 21st to July 2nd), led by Tom Schatz. Additional courses are expected and will be announced soon, please check the Program's website for updates.

All interested students may apply to one or more courses by email to utaustinportugal@fct.mctes.pt. The application must have the students' Résumé and a Motivation Letter to up to 350 words, as well as the person's basic info (name, telephone, address, contacts). The name of the course should be state in the email's subject (one email per course).

For more information on the courses' schedules and professors' bios please visit <http://www.utaustinportugal.org>.

■ **TOMÁS HENRIQUES** (FCSH/UNL) wins Guthman Musical Instrument Competition



CoLab researcher Tomás Henriques has won the 2010 Guthman Musical Instrument Competition for his Double Slide Controller, an electronic instrument featuring two slides inspired by the trombone.

Henriques describes his Double Slide Controller as "a new electronic instrument whose playing technique is based on the acoustic slide trombone. It has two independent slides and two versatile hand controllers that allow free motion in three spatial dimensions." A demo with more explanation is available at: <http://www.youtube.com/watch?v=NEDAJY92qt4>

Tomás Henriques is a researcher at the Centro de Estudos de Sociologia e Estética Musical (CESEM), Universidade Nova de Lisboa. He is currently on a post-doctoral research leave and teaching in the Music Department at Buffalo State College. He collaborates with Carlos Guedes and Bruce Pennycook in the CoLab-funded research project "Kinetic Controller Driven Music Systems". He is a composer for both acoustic and electronic instruments and conducts research on real-time interactive music composition and interfaces for real-time speech synthesis.

The Guthman Musical Instrument Competition is an annual event at the Georgia Tech Center for Music Technology which awards a prize for the best new ideas integrating musicality, design and engineering.

■ **IBERGRID'2010 AND THE SUMMER SCHOOL IN E-SCIENCE WITH MANY-CORE CPU/GPU PROCESSORS** in Braga, this May and June

The UT Austin | Portugal Program is promoting international events in Portugal that play a role in the development of imaging technologies to support the advance of science and engineering fields. These are crucial in current e-Science developments, which in most cases, require innovative ways to grasp the results of the simulation of computer models. Scientific visualization events will be active in Portugal this May and June with the support of the Advanced Computing program: the **IBERGRID'2010** conference and the **Summer School in e-Science with Many-Core CPU/GPU Processors**.



The **IBERGRID'2010** (<http://www.ibergrid.eu/2010/>) is the 4th edition of a series of Iberian Grid Infrastructure Conferences that started in 2007 under the framework of the bilateral agreement for Science and Technology signed between Portugal and Spain. IBERGRID'2010 will take place in Braga May 24th 2010 and aims to leverage the construction of a common Iberian Grid Infrastructure and to foster cooperation in the fields of grid computing and supercomputing. The organization of the IBERGRID event

includes an International Conference with several parallel Thematic Sessions (May 24th-27th), an HPC Workshop (May 27th afternoon), and a 1-day Hands-on Tutorial (May 28th), for researchers in computational science and engineering. This tutorial, with hands-on sessions, addresses issues related to access different types of remote HPC facilities, from thin-node-distributed-memory clusters (such as Ranger at TACC), to fat-node-SMP clusters (Finis Terrae at CESGA, Galicia, with up to 1TB of shared RAM) and to CPU_GPU clusters. This latter topic is covered by Paul Navratil from UT Austin, who will talk about CUDA and will access and use the Longhorn cluster at TACC, the largest visualization and data analysis GPU-cluster system in the world.



The **Summer School in e-Science with Many-Core CPU/GPU Processors** (<http://advcomp.di.uminho.pt/uta/mcss2010/>) is planned for the 3rd week of June, also in Braga, and is the first course in Europe given by two NVidia senior members (David Kirk and Michael Garland) and a

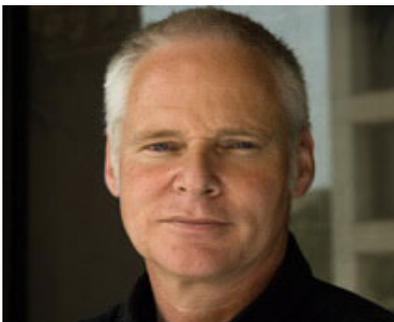
faculty from the University of Illinois at Urbana-Champaign (Wen-mei W. Hwu).

David Kirk is an NVIDIA Fellow and served from 1997 to 2009 as NVIDIA's chief scientist, a role in which he led the development of graphics technology for today's most popular consumer entertainment platforms. Wen-mei W. Hwu is the Walter J. ("Jerry") Sanders III-Advanced Micro Devices Endowed Chair in Electrical and Computer Engineering in the Coordinated Science Laboratory of the University of Illinois at Urbana-Champaign. Michael Garland is currently a research scientist with [NVIDIA Research](#) and an adjunct professor in the [Department of Computer Science](#) at the [University of Illinois](#), Urbana-Champaign.

The Summer School will also have other experts in Graphics Computing and from other Scientific Computing areas, to present their views and experiences in using CUDA in the development of their libraries or scientific applications.

For more information on how to attend, please visit the following websites: <http://www.ibergrid.eu/2010/>, for IBERGRID'2010 and <http://advcomp.di.uminho.pt/uta/mcss2010/>, for The Summer School.

■ **ANDREW GARRISON** teaches classes at UP, in Porto



As part of the advanced digital media program, UT Filmmaker and professor Andrew Garrison spent time in Porto in March, and reports on his co-teaching experiences there.

Two Porto classes, two realities of sight and sound. In one, a course on documentary, film-

makers shoot people at work an old couple making shoes by hand, a woman setting up her little butcher shop at the market, another woman taking a break from work behind the lunch counter to talk to the crew-she knows everyone of her customers. The students' challenge, from U.T. Professor and filmmaker Andrew Garrison working with Porto instructor and filmmaker Soraia Ferreira, is to tell these stories in three minutes each, the first assignment in their new documentary class.

Across town in the afternoon, Garrison works with Dr. Carlos Guedes in a class where eight graduate students listen and watch rough cuts of grad student films from the University of Texas Dept. RTF. The class in Sound Design at the University of Porto will edit and design sound for these four films. They have just completed a first assignment in three days—a two-minute "sound portrait" of another member of the class. The finished pieces are fun, complex, impressive, weaving between the speakers, making use of effects, atmospheres, and spoken word.

Both courses are part of a unique, combined PhD and Masters program that is working across disciplines in Porto, and, in the case of the Sound Design class, collaborating across the waters with Texas student filmmakers. Garrison returns to Austin after the week but will continue to listen and view work and advise students in collaboration with Ferreira, Guedes, and Dr. Jose Alves, in real time and time-shifted on-line.

■ **KATHLEEN TYNER** presented opening speech at the 2nd International Conference on Serious Games, in Braga

Kathleen Tyner, Assistant Professor in the Radio-Television-Film Department at the University of Texas at Austin presented the opening keynote speech at the Second Annual International Conference on Games and Virtual Worlds for Serious Applications on March 25-26, 2010 in Braga, Portugal. The speech, *An Array of Play: Games for Living and Learning*, presented



a wide range of contexts for serious games and virtual worlds across academic disciplines.

The conference, hosted by the Universidade de Minho in Braga, convened researchers, game producers and computer scientists from around the world to present and discuss the latest research in the area of "serious games." The next conference in 2011 will be held in Greece. To see complete details, including the winning research papers from the conference, please click on: <http://www.vsgames2010.org/>

Preceding the conference, as part of the Co-Lab effort to identify co-supervision activities for students, Professor Tyner also presented her research on digital media to graduate students at the University of Porto on March 23, 2010. The meeting was coordinated by Professor Artur Pimenta Alves, Co-Director of Digital Media at the University of Porto and offered an opportunity for students to present their current work and to learn about links to people and resources that could support their research.

■ FUTURE PLACES

FUTURE PLACES showcases at SXSW in Austin, Texas



The futureplaces showcase at SXSW took place at the AMODA-Club DeVille evening event on March 13, and was a great success! For 40 minutes on a hot Austin night, the audience was offered a selection of recordings from the two editions of the festival (including various sound samples from the concerts by the STOP collective), as well as recordings of various local initiatives throughout Europe. A highlight of the set was the spontaneous audience interaction with samples from a demonstration in London called "Scream for Mother Earth"!

The sound tapestry, performed by Heitor Alvelos and Anselmo Canha, was accompanied by projections by João Cruz. These projections incorporated the festival's URL (futureplaces.org), as well as slogans referring to the festival, the outcome of an oblique brainstorm which included:

VISIBLE CHALLENGES

FICTITIOUS ERAS
UNKNOWN POTENTIAL
MAGNETIC OTHERS
DISCREET FACILITATORS
ENDLESS ENDS
POTENTIAL VERTIGO
MIXABLE CITIES
HISTORICAL EXPANSION
HOPEFUL LANGUAGES
ANXIOUS CONSENSUS

The profile of the festival was raised through the showcase itself, as well as through the distribution of flyers and t-shirts. Many attendants expressed great interest in submitting work for futureplaces 2010.



■ APPLICATIONS ARE OPEN for 2010 International School on Digital Transformation

The International School on Digital Transformation is an annual intensive program on the democratic transformation of society through digital media. ISDT 2010 will be held July 25-30 in Porto, Portugal. The School is now accepting applications from advanced students and recent graduates from around the world with an interest in digital technology and the enrichment of civil society. The application deadline is April 30, 2010.

The International School on Digital Transformation is an intensive six-day residential program, conducted in English and bringing together emerging and established scholars and professionals from a variety of countries. During the week, innovators in digital communications will serve as teachers and mentors, presenting current projects and engaging in discussion. Presenters and students will be regarded as peers during the School. For Gary Chapman, lecturer of University of Texas at Austin, "ISDT is a unique experience, a different kind of event -- a cross between a research conference and a week-long 'camp' of diverse people using digital technologies to help transform societies from the bottom up. And Porto is the perfect place to do this."

Students of the School will have the opportunity to develop and apply research design skills to projects important to civil society. Consisting of approximately 30 students and 15 faculty members, the School seeks to create an atmosphere of scholarly collegiality, fostering dialogue among diverse perspectives including those of design, policy, and research backgrounds. The daily schedule will include time for presentations, workshop-style collaboration, and informal brainstorming sessions among faculty and students.

The School's program will focus on these themes:

- Democratic transformations of society through digital media
- Innovations in transparency and political participation using new online tools
- Grassroots civic activities using digital technologies
- Prospects for digital communication in developing regions
- Economically and politically galvanizing historically underserved areas
- Developing "open cities" and municipal participation through technological interventions

For more information about the School, its faculty, and to apply, please visit: www.digitaltransformationschool.org

■ MÓNICA MENDES

(PhD student in Digital Media) visits UT Austin and SXSW

Visiting the University of Texas and attending the South by Southwest in Austin was a very intense experience, worth every moment! Time was the only scarce resource, indeed. The whole schedule of this prospective visit was gratefully intensive. Meeting with the UT faculty and researchers at the Communication College and the School of Information provided valuable feedback and recommendations on my research project.

The fascinating Radio-Television-Film department was unveiled through a comprehensive tour on the subjects and facilities offered to the students. I was also given the opportunity to visit the Videoranch 3D studios during a live performance with 3D scenery and avatars, and all the emotion of real-time!

There was a welcome evening, a wonderful get together to meet with UT researchers and Portuguese fellows in Austin, and it also was really nice to be part of the UT audience when our Portuguese fellows performed at the AMODA digital showcase.

The SXSW festival was another acquaintance from this awesome experience: sleepless nights/days overtaken by compelling references at the conferences, workshops and networking during the interactive week, and also from the music field – an insane adventure worth the try!

Plans for the future naturally triggered from this visit, including ideas for workshops in video effects and optimization for



real-time processing, as well as on directing and editing a trailer.

Austin is a simultaneously quiet and raving spacious city with an inspiring environment, and many, many trees – an enchanting setup for the RTiVISS research, and with interesting resources for the interactive installations in progress.

I'm looking forward to coming back, hopefully to work on film, real-time video and usability issues at UT, and also regarding a panel proposal focusing on real-time video in digital environments for the next SXSW Interactive.

To share this experience, I've posted at the research blog www.rtiwiss.com and linked to the UT Austin

www.flickr.com/groups/utportugal where you can also add your comments or ask any further specificities.

By Mónica Mendes

■ BRUCE PENNYCOOK

(UT Austin) presented at GEAR: Sound & Interactive Media



Bruce Pennycook has participated at Gear: Sound & Interactive media as a presenter. The event, which took place at Universidade da Beira Interior, in Covilhã, joined researchers, musicians, artists, research centers and companies connected to the interactive media from such countries as the United States, United Kingdom, The Netherlands, Japan and Portugal.

Gear was a 5 day event with conferences and workshops during the day and project presentations and multimedia concerts at night. Pennycook presented on April 7th together with names like Jade Walker (USA), Teresa Dillon (IRL, UK, PT) and Roger B. Dannenberg (USA) among others. This event also saw presentations of some of the main multimedia design companies in Portugal, like YDreams, Near Interaction, Edigma and CriativeBitBox.

■ CLOUDVIEWS cloud computing conference in Porto 20-21 May, 2010

The CloudViews 2010 conference will convene IT professionals, researchers, and service providers in the cloud computing field. Organized by EuroCloud Portugal, CloudViews 2010 is the second annual edition of the conference. This year's theme is the "Cloud Ecosystem" and discussion topics will include:

- Cloud elasticity
- Cloud computing platforms interoperability
- Data management
- IT departments and cloud computing integration
- User perspective – how Internet (the cloud) will become our PC

- Encryption and security technologies
- Predictability and provision platforms
- SLAs monitoring and agreements contracts
- Elastic networks
- Companies and startup opportunities – how to become a cloud computing provider and how to use cloud computing to add (real) value to business

The deadline for submitting paper proposals is 15 April, 2010. For more information, please see: <http://2010.cloudviews.org/>

■ THE UTEN CORNER S&T COMMERCIALISATION

UTEN Portugal
University Technology Enterprise Network

UTAD Intern Completes Tech Assessments During U.S. Internship

Carla Mascarenhas of UTAD recently completed a two-month U.S.-based internship with Sean Thompson at South Texas Technology Management (www.utsttm.org). Also during her two-month internship, Carla performed a technology and market assessment of New Agglomerant for Wood Particles working with Cliff Zintgraff, Program Manager from UTEN UT-Austin. Two steps were performed. In the first, a 4-8 hour RapidScreen was performed to assess categories of readiness related to the technology, technology team, institution, and market. The RapidScreen identifies issues in the readiness of the technology, institution, or team to move forward with the technology, evaluating both the technology, and also the infrastructure required to advance commercialization. The second step, the MarketLook, was a 40 to 60 hour assessment of the market size and opportunity, with a focus on the U.S. market. The goal of this step is to uncover the "voice of the market" with respect to the technology, so that the TTO can work with the inventor to negotiate a license, form a spin-off, create research, development and sales collaborations, and/or address shortcomings that are barriers to market acceptance. The MarketLook process uses as its main research method primary interviews (phone calls, in-person interviews, and email exchanges) with potential customers, end users, partners and other expert validators in the technology's target market/s.

The RapidScreen assessment results were generally positive, characterizing a good infrastructure to support commercialization efforts, but there were surprising find-



ings regarding existing agreements that led to a strategy review. Using the technology description developed and techniques trained during the internship, three core market interviews were secured, including one with the Director of Technology for a large wood products manufacturer, an industry association Certification Director, and a prolific industry journalist. These interviews defined in great detail exactly how the market views the technology and what characteristics of the technology matter most.

Carla will be taking these lessons back to UTAD: "With the RapidScreen and MarketLook and UTEN training, regarding the technology in study, we were able to see the very real need for a product like New Agglomerant for Wood Particles in the market. We also learned that our office and our researcher still have work to do to be successful in the market, especially with respect to understanding the cost of production, and the prices we can expect the market to pay. We will need to do these things in order to have a more concrete answer from the companies we contacted, especially from one company in particular who showed real interest in our technology. Overall, the tools and lessons learned will help the UTAD TTO make better choices about the technologies to pursue for commercialization. Since the RapidScreen uncovers the status of the technology and research team support, and the MarketLook uncovers the market's opinion of the technology, these two methodologies are very useful when we want to extend patent protection to PCT or European Patents."

■ MARCH UTEN WORKSHOP on University Spin-outs and Venture Creation



In March, UTEN held a workshop on university spin-outs and models for venture creation featuring Brett Cornwell- Director of Commercialization Services for the Texas A&M University System, Professor of Technology Commercialization at the IC2 Institute at the University of Texas, and former Technology Commercialization Specialist for NASA. Ana Paula Amorim- UTEN Liaison, Maria Jose Francisco- UTEN Portugal Program Manager, and Eli D. Mercer- UTEN Austin Program Manager for Training and Internships represented the UTEN Team. We would like to thank the 22 technology transfer professionals from across Portugal who attended the sessions (including licensing professionals, entrepreneurship advisors, and incubator managers) for an excellent exchange of ideas. The New University of Lisbon (UNL) graciously hosted the event. Our special thanks to UNL and especially to Dina Chaves, UTEN Austin intern in 2009.

WORKSHOP AGENDA:

Day 1:

Morning- Brett introduced the “why do we exist and what are we trying to accomplish” discussion. Participants were challenged to consider goals, impact, and role within the university ecosystem.

Afternoon- Brett introduced the key concepts of the pre-reading materials regarding OTC best practices, and began to describe his vision for “taking your OTC from an appendix to the heart of the university”. Participants were challenged to consider what role they currently play, where they would like to go as an office, and how they might get there.

Day 2:

Morning- Brett Described the A&M philosophy, model, and matrix for technology classification, which links directly to the A&M methodology for making informed decisions regarding path-to-market, venture vs. licensing focus, resource allocation, etc.

Afternoon- Eli introduced the topic of business intelligence/competitive intelligence as a tool for decision-making and support using the A&M model and methodology as an effective example, then presented, compared, and contrasted three tools used in IC2 and partner OTC's:

1. The UT OTC Methodology
2. The Quicklook Methodology
3. The Rapid Screen Methodology

Participants were challenged to consider ways their offices could formalize decision-making processes, and to form teams and map technologies using Brett's matrix and approach.

Day 3:

Morning- Eli introduced his methodology and approach to creating a data grid for team intelligence gathering. Participants were challenged to consider ways to incorporate some form of data mapping into their processes, and to map technologies on Brett's matrix based on their evaluations.

Afternoon- Participants shared presentations and conclusions from the A&M approach, and the context within their ecosystems. Brett and the UTEN team provided feedback and the group discussed ways to leverage lessons shared to successfully achieve commercialization goals through effective venture creation techniques and careful selection of technologies for university spin-outs.



■ 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.

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) 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

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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