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Verónica Costa Orvalho

Ph.D. IN SOFTWARE, COMPUTER GRAPHICS

SUMMARY

With over six years of experience in the computer graphics industry, I have pursued the dual paths of programmer and artist. This rare ability to combine both the technical and artistic skills has led me to the research and development of high-end technology for the entertainment industry. I have developed an application to ease the facial rigging process that is currently being used by major film and videogame companies. Now, I am working with Blur Studios (California, USA) and Microsoft Portugal on facial rigging and animation projects. I am also researching on computer graphics and virtual reality with the group *Moving Event*, under the direction of Mel Slater [<http://www.lsi.upc.edu/melslater/>].

EDUCATION

Ph.D. in Software

SEPTEMBER 2007

UNIVERSITAT POLITECNICA DE CATALUNYA

BARCELONA, SPAIN

Title: *Fast and Reusable Facial Rigging and Animation: Create Once, Use Many*
Supervised by Antonio Susín

Abstract: Reproducing the subtleties of a face through animation requires developing a sophisticated character rig. But, creating by hand the inner structure and controls of each character is a very labor intensive and time consuming task. My research focus on developing an application that is 90 % to 99 % faster than traditional manual rigging.

(finished with Excellent 'Cum Laude' degree)

D.E.A. in Computer Science and Digital Communication

OCTOBER 2005

UNIVERSITAT POMPEU FABRA

BARCELONA, SPAIN

Project: *A Facial Animation System For CG Films*

Selective Subjects:

Fundamentals of Computer Science and Digital Communication; Introduction to Image Processing; Advanced Introduction to Artificial Intelligence (AI); Topics in AI; Advanced Image Processing and Computer Graphics; Modeling and Visualization; Advanced Visualization.

(finished with highest distinction)

Master in Videogame Design and Development

JULY 2003

UNIVERSITAT POMPEU FABRA

BARCELONA, SPAIN

Project: *Development of a videogame engine and game design document*

Selective Subjects:

Artificial Intelligence (Game Logic); Rendering Techniques; User Interface; Game Design and Game Architecture; Physically-based Systems.

(finished with the highest distinction)

Software Engineer

NOVEMBER 2000

UNIVERSIDAD DE BELGRANO

BUENOS AIRES, ARGENTINA

Selective Subjects:

Modeling and Simulation; Geometry; Software Engineer; Computer Graphics; Computer Architecture; Automatas and Formal Languages; Physics; Programming Languages; Database Systems; Networking and Telecommunications.

(finished with the highest distinction - 90th percentile)

B.Sc. in Computer Science

NOVEMBER 1999

UNIVERSIDAD DE BELGRANO

BUENOS AIRES, ARGENTINA

Exchange Program to the USA:

I spent the 1998-1999 academic year at CSUS (California State University Sacramento). I took several extra curricula courses: TV Broadcasting, Web Development, Development of Client-Server Applications and Advanced Software Engineer (Graduate Level).

TEACHING

Multimedia Systems, Computer Graphics, Data Structure

2008-PRESENT

FCUP

PORTO, PORTUGAL

For more detail visit <http://www.dcc.fc.up.pt/veronica.orvalho>

Final Year Project, SW Design, Research Methodology

2005-2006

ISTEC PORTO

PORTO, PORTUGAL

Presented multiple classes that introduced students to scientific research methodology and software development. Supervised the final project of 27 students. During this time, I was also member of the ISTEC scientific board.

Computer Graphics, Programming

2003-2005

UNIVERSITAT POMPEU FABRA

BARCELONA, SPAIN

Introduced students to computer graphics. The course was divided into multiple classes, each one with programming assignments to complement the theory lessons, using OpenGL, Max Script, C++. More advanced topics were also covered that lead to the development of a videogame level, including rendering techniques, illumination, collision detections, particle systems, and others. I had over 150 students.

Project Management, Final Project

1999-2001

UNIVERSIDAD TECNOLÓGICA NACIONAL

BUENOS AIRES, ARGENTINA

Within a team of 14 professors and over 100 students, we split the course into several classes. I was responsible for supervising students whose projects were related to mobile applications and web based systems.

PROFESSIONAL **Founder and CTO (Chief Technology Officer)**
EXPERIENCE

2007-PRESENT

FACE IN MOTION

PORTO, PORTUGAL

I am one of the founders of Face In Motion, which is a start-up that aims to automate the rigging process within the animation production pipeline. I developed the core technology for the facial rigging system. My main role was the research and development of techniques and algorithms related to computer graphics. I implemented in C++ a set of plugins for Maya to come up with a solution that achieves cinematographic quality and interactivity to be used in films and videogames. [<http://www.faceinmotion.com/>]

Research and Development, Telecommunication and Multimedia Unit

04/2002-10/2002

INESC PORTO

PORTO, PORTUGAL

Research Area: Content Management and Video Processing.

I was part of the project CONTESSA (Content Transformation Engine Supporting Universal Access) [<http://contessa.intranet.gr/>]: a European project developed by INESC Porto and several Partners, to build a system to gather, manage, exchange, adapt and publish multimedia content across distinct environments, requirements and client devices (mobile phones, internet browsers, PDA's, Cable, Interactive TV). I worked on several server and client modules, worked on the DB design, implemented GUI interfaces in Java, and helped design part of the system to manage and exchange content using MPEG-21 concepts.
(Contact: Prof. José Ruela)

Project Manager (Producer)

09/2001-01/2002

PATAGONIK FILM GROUP

BUENOS AIRES, ARGENTINA

Patagonik Film is an Argentinean leading film production company, responsible for the Oscar winning movie '*El hijo de la novia*'. My many diverse roles at Patagonik included producing a television series for Portugal ('*A Minha Família É Uma Animação*'- *Neco*), which integrated 2D animation with live action actors. I had to supervise, coordinate and deliver on time the weekly episodes. With my knowledge on software development, my contributions also included the design and implementation of an intuitive pipeline to integrate the 2D animations into the episodes that were already filmed with live action scenes. We used SGI computers, Flame workstation, AVID and combustion editing software. [<http://www.patagonik.com.ar/>]
(Contact: Juan Pablo Buscarini)

AWARDS

Winner 'AlumnIdea 2006'

SEPTEMBER 2006

Organized by ALUMNI LEIC, FEUP

PORTO, PORTUGAL

Project: *Face In Motion*.
[<http://alumnidea.fe.up.pt/>]

Finalist Award 'Innovact 2006'

JULY 2006

Organized by L'ETUDIANT ET L'EXPRESS

REIMS, FRANCE

Project: *Face Puppet, Automatic Facial Animation*.
[<http://www.innovact.com/>]

3rd Place 'IV Concurso Innova 2004'

JUNE 2004

Organized by UPC, EAE AND CIDEM

BARCELONA, SPAIN

Project: *Photorealistic Facial Animation and Recognition*.
[<http://pinnova.upc.es/>]

Finalist Award 'Innovact 2004'

JULY 2004

Organized by L'ETUDIANT ET L'EXPRESS

REIMS, FRANCE

Project: *Photorealistic Facial Animation System for the Entertainment Industry*.
[<http://www.innovact.com/>]

PUBLICATIONS 1ST AUTHOR

COSTA ORVALHO, V. 2008. A System to Reuse Facial Rigs and Animations. In *In IEEE FG 2008, ECAG Workshop*. Facial and Bodily Expressions for Control and Adaptation of Games, Amsterdam, Holland, September 2008. IEEE.

COSTA ORVALHO, V., ZACUR, E., AND SUSIN, T. 2008. Transferring the Rig and Animations from a Character to Different Face Models. In *Computer Graphics Forum*, CGF 27(8), December 2008, pp. 1997-2012.

COSTA ORVALHO, V., AND SUSIN, T. 2007. Fast and Reusable Facial Rigging and Animation. In *SIGGRAPH '07: Sketches*, The 34th International Conference and Exhibition on Computer Graphics and Interactive Techniques, San Diego, USA, ACM Press.

COSTA ORVALHO, V., AND SUSIN, T. 2007. Creating Faces: Reusing Character Rig and Animations. In *SCA '07: Eurographics/ACMSIGGRAPH Symposium on Computer Animation*, San Diego, USA, ACM Press.

COSTA ORVALHO, V., AND SUSIN, T. 2007. Creating the Virtual Self: Reusing Facial Animation in Different Avatars. In *SIGPHI '07: Mundos Digitales*, A Coruña, Spain, pp 133-138 (2007).

COSTA ORVALHO, V., ZACUR, E., AND SUSIN, T. 2006. A Maya Plugin to Transfer Facial Expressions to Different Face Models. In *iDiG '06: International Digital Games Conference*, Portalegre, Portugal. Editors Dionisio J., Ramires Fernandes A., Proceedings iDiG '06, pp 12-20 (2006).

COSTA ORVALHO, V., ZACUR, E., AND SUSIN, T. 2006. Transferring a Labeled Generic Rig to Animate Face Models. In *AMDO '06: 4th International Conference on Articulated Motion and Deformable Objects*, Springer Press, Port d'Andratx, Mallorca, Spain. Proceedings AMDO'06, Ed. Springer Lecture Notes, pp 21-31 (2006).

COSTA ORVALHO, V., ZACUR, E., AND SUSIN, T. 2006. Transferring Facial Expressions to Different Face Models. In *SIACG '06: Third Ibero-American Symposium in Computer Graphics*, Santiago de Compostela, Spain. Editors Brunet P., Correia N., Baranoski G. Proceedings SIACG'06, pp 13-20 (2006).

COSTA ORVALHO, V., AND SUSIN, T. 2005. A Weighted Guide Curve Deformation Algorithm for Facial Animation. In *Technical Report*, UPF, Barcelona, Spain (2005).

INVITED SPEAKER, WORKSHOPS

In 2005-2009 I have given talks in universities and companies (in many of them more than once) about facial animation for films and videogames. I have also given workshops on videogame design and development:

Canada. ELECTRONIC ARTS, RADICAL, MAINFRAME, MERCURY FILMWORKS, VFS, UBC.

Spain. UPC, URJC, DYGRAFILMS, FILMAX-BREN.

Portugal. FJUP, FCUP, FEUP, UCP PORTO, ISTECH PORTO, ISTECH LISBOA, MICROSOFT EPCG.

United Kingdom. UCL (UNIVERSITY COLLEGE LONDON), ELECTRONIC ARTS.

USA. BLUR STUDIOS, UCB (UNIVERSITY OF CALIFORNIA BERKLEY).

INVITED
SPEAKER,
WORKSHOPS
(CONT.)

[2009]

Invited Speaker, *Research with XNA Technology*, Microsoft Dev Days '09 , Instituto Superior Tecnico, Lisbon, Portugal, February 18th-19th 2009.

[2008]

Invited Speaker, *Character Animation for Films and Videogames: Past, Present and Future*, Seminario MTAD , Minho University, Guimarães, Portugal, November 21st 2008.

Invited Speaker, *New Trends on Character Animation*, Digital Games'08 , Porto, Portugal, November 6th-7th 2008.

Workshop (35h), *Videogame Design and Development for XNA*, Microsoft, Lisbon, Portugal, March, 2008.

Invited Speaker, *Facial Animation for Films and Videogames a new Approach*, VI Jornadas Computação Gráfica e Multimédia'08 , Viana do Castelo, Portugal, February 21th 2008.

Invited Speaker, *Make Faces: Automatically Transfer Expressions Between Characters*, Sony, Foster City, California, USA, January 22th 2008.

Invited Speaker, *Make Faces: Automatically Transfer Expressions Between Characters*, University of California Berkley, Berkley, USA, January 2008.

[2007]

Invited Speaker, *Fast and Reusable Facial Rigging and Animation*, EA (Electronic Arts Europe), London, United Kingdom, October 2007.

Invited Speaker, *Fast and Reusable Facial Rigging and Animation*, UCL (University College London), London, United Kingdom, October 2007.

Invited Speaker, *Videogame Development for Microsoft XNA Platform*, Microsoft, Tagus Park, Porto Salvo, Portugal, October 2007.

Invited Speaker, *Fast and Reusable Facial Rigging and Animation*, Blur Studios, Los Angeles, USA, August 2007.

Workshop (24h), *Videogame Design and Development*, FCUP (Faculdade de Ciências da Universidade do Porto), Porto, Portugal, July 2007.

Invited Speaker, *Facial Synthesis and The Medical Industry*, FCUP (Faculdade de Ciências da Universidade do Porto), Porto, Portugal, June 2007.

Invited Panelist, *PhD Symposium for the PRESENCIA project*, UPC (Universitat Politècnica de Catalunya), Barcelona, Spain, May 2007.

Invited Speaker, *A Facial Animation System for CG Films and Videogames*, FCUP (Faculdade de Ciências da Universidade do Porto), Porto, Portugal, February 2007.

Invited Speaker, *A Facial Animation System for CG Films and Videogames*, FEUP (Faculdade de Engenharia da Universidade do Porto), Porto, Portugal, February 2007.

[2006]

Invited Speaker, *Facial Animation for Films and Videogames Project Presentation*, Electronic Arts, Vancouver, Canada, November 23rd, 2006.

Invited Speaker, *Facial Animation for Films and Videogames Project Presentation*, Mainframe-Rainmaker, Vancouver, Canada, November 17th, 2006.

Invited Speaker, *Facial Animation for Films and Videogames Project Presentation*, Mercury Filmworks, Vancouver, Canada, November 17th, 2006.

Invited Speaker, *Facial Animation for Films and Videogames Project Presentation*, Radical Entertainment, Vancouver, Canada, November 9th, 2006.

Invited Speaker, *A Facial Animation System For CG Films and Videogames*, AMORE, University of British Columbia, Vancouver, Canada, October 18th, 2006.

Invited Speaker, *A Facial Animation System For CG Films and Videogames*, HCT Lab, University of British Columbia, Vancouver, Canada, October 16th, 2006.

[2005]

Workshop, *Videogame Design and Content Development for Videogame*, Faculdade de Jornalismo, Universidade Porto, Porto, Portugal, October 2005.

Invited Speaker, *The Videogame Industry a Short Overview*, Universidade Católica Portuguesa, Porto, Portugal, April 2005.

Workshop, *Videogame Design*, Universidade Católica Portuguesa, Porto, Portugal, April 2005.

OTHER

Conference Committee: GAMES '06, SIGGRAPH ASIA 2008

Paper Reviewer: iDIG '06, AMDO '06, VIRTUAL REALITY 2008 (IEEE), COMPUTER & GRAPHICS, SIGGRAPH ASIA 2008

Member of: IGDA, ACM

Scientific Committee: ISTECS (Portugal)

LANGUAGES

Spanish, NATIVE. **English and Portuguese**, FLUENT. **French**, INTERMEDIATE. **Catalan**, BASIC.

NATIONALITY

Portuguese and Argentinean.

PERSONAL INTERESTS

Comics, videogames, films, alpine skiing, traveling and cooking.