

CURRICULUM VITAE

Ricardo L. de Queiroz

Professor

Universidade de Brasilia

Professional Experience

- Universidade de Brasilia, Brasília, Brazil.
 - 2010: Full (Titular) Professor. Computer Science Department.
 - Admitted by public exam to the highest ranked post (Professor Titular) in the Brazilian public university system. At any given department, less than 10% of faculty members may be in this category.
 - 2004-2010: Professor of Electrical Engineering .
 - Teaching at both graduate and undergraduate level.
 - Leading a group of more than a dozen students, at the undergraduate, Master's and Doctoral level.
 - Coordinator of 4 funded research projects.
 - Many papers published in journals and conferences, as well as one book chapter.
 - Expert for the Brazilian Digital Television Project (SBTVD). Advisor on video compression for the government. Member of the SBTVD Forum.
 - 2003-2004: Research associate with the Department of Electrical Engineering.
 - Research and development on surveillance systems, watermarking, image compression.
 - 1990-1991: Research associate with the Department of Electrical Engineering.
 - Published 2 peer-reviewed journal papers and 3 conference papers.
 - Contributions were a new and efficient coder, suitable for progressive transmission, implementation of a progressive image transmission system, and computation of compression bounds for many transforms.
 - During the appointment, the first method to process finite length signals with general non-symmetric filter banks was developed and published.
- Xerox Corporation (1994-2002) Digital Imaging Technology Center, Webster, NY, USA. Member of the Research Staff. Duties include research in new digital image processing and compression systems for color printing systems.
 - Project Leader for a group of 5 people.

- Authored 37 patents filed with the USPTO and generally co-filed in Europe, Japan, and Brazil.
- Authored 23 Journal papers on processing of color images, compression, and signal processing. In most of them being the main author.
- Authored 34 Conference papers.
- Authored 4 book chapter.
- Responsible for compression systems for many platforms across the corporation. Part of the team that helped developing flagship systems such as Xerox iGen3.
- Compression support and expertise for a software platform used across the corporation.
- Last work at Xerox was a method to convert color images into gray ones, that allows for printing the images in a black and white printer, and, later on, after scanning the gray image, to recover the colors! Because of the novelty of the idea, and the challenge posed by the problem itself, this work not only was published in a reputable Journal and on reputable conferences, but it gained worldwide attention. It was mentioned in many newspapers around the world and in dozens of high-tech business related articles.
- In the mid 90s, innovative platforms and techniques for processing images in compressed domain were devised, developed and deployed into products.

Other:

- IESB University (2003-2004), Brasilia, Brazil. Adjunct Professor at the undergraduate level.
- Rochester Institute of Technology (2001-2002), Rochester, NY. Adjunct Professor at the graduate level.
- The University of Texas at Arlington (1993-1994) Department of Electrical Engineering, Arlington, TX, USA. Systems administrator and Teaching Assistant.
- SQR Pesquisa e Consultoria Ltda. (1990-1991), Brazil. Engineer. Design and implementation of a distributed image database.
- Telebrás (1987-1988), Divisão de Dados e Textos, Brasília, DF, Brazil. Duties include specification of videotext systems and of data communication network protocols.

Education

- Doctor of Philosophy (Ph.D.), Electrical Engineering, The University of Texas at Arlington,

Arlington, TX, USA, 1992-1994.

Dissertation: “*On lapped transforms*”

During the Ph.D. program, 10 peer-reviewed journal papers were written or conceived leading to publication, of which 7 were a direct byproduct of the Dissertation research. A total of 10 conference papers were also published along with one book chapter.

Three major contributions from the dissertation were:

- The Generalized lapped orthogonal transform (GenLOT), which is a generalization of the lapped orthogonal transform (LOT). Even today, GenLOT’s performance for image compression is very competitive, such that the paper published on GenLOT is a mandatory reference for those researching of symmetric filter banks.
 - Structure for time varying filter banks. The dissertation was the first to provide mechanisms for implementing time varying filter banks with perfect orthogonality. Extensions were made for constructing adaptive wavelet packets. Adaptation algorithms for varying the filter banks and wavelet packets were also presented.
 - A method to process finite-length signals using filter banks. Methods were presented to process finite signals such as images using any orthogonal, not necessarily symmetric, filter bank.
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- M. Sc., Electrical Engineering, Universidade Estadual de Campinas-UNICAMP, Campinas, Brazil, 1988-1990 Thesis: “*Multiresolution Systems for Redundancy Extraction and Progressive transmission in Image Coding*”.

During the Master’s program 4 conference papers were published.

The major contribution of the thesis was a multi-resolution approach for DPCM that was meant for a CODEC to digitize and compress TV signals being developed at the Brazil Telecom’s R&D labs at that time. With the proposed method, the typically serial DPCM method was parallelized allowing for the implementation of the CODEC within existing technology that was available in Brazil at that time..

- Engineer (EE), Universidade de Brasília – UnB, Brasília DF, 1982-1987.

Academic Achievements

- Member of the Image, Video and Multidimensional Signal Processing **Technical Committee (IVMSP-TC)** of the IEEE Signal Processing Society.
- Member of the Multimedia and Signal Processing **Technical Committee (MMSP-TC)** of the IEEE Signal Processing Society.
- **Associate Editor** for the IEEE Transactions on Circuits and Systems for Video Technology.
- **Associate Editor** for the EURASIP Journal on Image and Video Processing.
- Past **Associate Editor** for the IEEE Transactions on Image Processing.
- Past **Associate Editor** for the IEEE Signal Processing Letters.
- **Author of 42 articles** published in peer-reviewed scientific journals.
- **Author of 100 articles** presented and published in international conference proceedings.
- **Author of 46 issued patents** with the US PTO and often co-applied in Japan, Europe and Latin America.
- **Author** of 6 technical book chapters.
- **General Chair** of the 2009 International Workshop on Multimedia Signal Processing, MMSP 2009.
- **General Chair** of the 2011 International Symposium on Circuits and Systems, ISCAS 2011.
- **Reviewer** for most IEEE journals dealing with signal processing and communications, as well as publications of the OSA, IS&T and Eurasip.
- **Member of the technical committee** for several conferences, including all recent ICASSP and ICIP issues.
- **Reviewer** for the U.S. National Science Foundation and for the Brazilian Research Council in the evaluation of grant requests, as well as for reviewing technical books in the signal processing area.
- **Invited** to give **talks** to tens of companies and universities.
- **Past chair** of the Rochester chapter of the IEEE Signal Processing Society.
- **Past organizer** since its inception of the Western New York Image Processing Workshop until 2002.
- Recipient of several **scholarships and grants** from the Brazilian Government.
- Recipient of the **Academic Excellence Award** at the University of Texas at Arlington.
- Recipient of the **Outstanding Activity Award** from the IEEE.

- **Senior member** of the IEEE.
- **Membership:** Institute of Electrical and Electronics Engineers (IEEE), and of its Signal Processing, Circuits and Systems, and Communications societies; Society for Imaging Science and Technology (IS&T); Sociedade Brasileira de Telecomunicações, Conselho Regional de Engenharia e Arquitetura do DF.
- **Expert for the Brazilian Government on the Brazilian Digital TV System.** Consulting to Ministers and other high level members of the Government at many meetings. Spoke (in favor of H.264 rather than MPEG-2) at the parliament's tribune and at The President's office. Participated directly in the negotiations with the Japanese institutions towards the landmark agreement between Brazilian and Japanese governments for a jointly developed DTV system.

Teaching and advising

Courses taught

- Digital Signal Processing
- Data Compression,
- Analytical Topics for Computer Engineers,
- Communication Systems,
- Digital Image Processing.
- Electrical Circuits
- Multirate Digital Signal Processing

Advised work

- A. Zaghetto, *Compressão de Documentos Compostos Usando H.264/AVC-Intra*, (in Portuguese), Tese de Doutorado, Universidade de Brasília, 2009.
- B. Macchiavello, *Codificador Distribuído de Vídeo com Complexidade Variável a Partir de Codificação em Resolução Mista*, (in Portuguese), Tese de Doutorado, Universidade de Brasília, 2009.
- K. F. Oliveira, *Análise da Transformada Wavelet Direcional Adaptativa na Compressão de Imagens*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2009.
- R. U. Ferreira, *Codificador H.264/AVC com Compensação de Movimento Baseada em Partições Alternativas de Macroblocos*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2009.
- F. Brandi, *Super-Resolução Utilizando Quadros-Chave em Sequências de Resolução Mista*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2009.
- R. G. Oliveira, *Avaliação do Desempenho de Transformadas Sobrepostas e Wavelets nos Codificadores Padrão JPEG 2000 e H.264/AVC*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2008.
- T. A. Fonseca, *Redução de Complexidade na Compressão de Vídeo de Alta Resolução*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2008.
- E. P. Silva, *Transcodificador de Vídeo Wyner-Ziv/H.263 Para Comunicação Entre Dispositivos Móveis*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2008.
- E. M. Hung, *Compensação de Movimento Utilizando Blocos Multi-Escala e Forma Variável Em Um Codec de Vídeo Híbrido*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2007.
- F. N. Leite, *Calibração de Dispositivos a Cores Utilizando Uma Câmera Digital*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2007.
- D. Dias, *Modelo Para a Representação Eletrônica de Cheques*, (in Portuguese), Dissertação de Mestrado, Universidade de Brasília, 2006.
- A. L. Santos, *Um Método de Ocultamento de Erros em Transmissão de Vídeo*, (in Portuguese), Dissertação de Mestrado, Universidade Federal do Rio de Janeiro, 2006.
- B. Woz, *An Exploration of MPEG-7 Shape Descriptors*, Master's Thesis, Rochester

Institute of Technology, 2003.

- Supervised 14 “Final Project” monographs at Universidade de Brasília.

Skills

Technical expertise

- Image and video compression, color imaging, signal processing, multimedia systems, video database, document and signal authentication, videoconference.

Computing

- System administration of Unix systems and networks.
- Part of the development team of a large image processing package utilized worldwide within Xerox.
- Capability maturity models.

Management

- Leadership through quality, time-to-market. Experience leading group.

Foreign Languages

- Native Portuguese speaker. Perfect oral and written communications.
- Comprehension of written or spoken Spanish and basic conversation..
- Technical reading in French.

Personal

- Citizen of Brazil.
- 45 year old, married, with two daughters.
- Interests in music, sports and community activities.

References

- Upon request