

Rômulo Teixeira de Abreu Pinho

Curriculum Vitæ

1 Contact Information

Rua Tiradentes 103 apto. 508
Ingá, Niterói, RJ
24210-510, Brazil
Mobile: +55 21 8650 9135
e-mail: romulopinho@yahoo.com.br
URL: www.tecgraf.puc-rio.br/~rpinho
Lattes: lattes.cnpq.br/1200048142102331
LinkedIn: br.linkedin.com/in/romulopinho

2 Biographical Data

Birth date: March, 3rd, 1977
Place of Birth: Petrópolis, RJ, Brazil
Citizenship: Brazilian
Marital status: Married

3 Professional Interests

- R&D in (Medical) Image Processing and/or Computer Graphics
- R&D in science and technology

4 Current Position

August, 2013 present	R&D Software Engineer TecGraf/PUC-Rio (Rio de Janeiro, Brazil) Design, development, and maintenance of computer graphics applications for the Oil & Gas industry. Software development in C++, OpenGL, Lua.
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5 Education

November, 2010	Ph.D. in Physics (Image Processing). Universiteit Antwerpen, Antwerp, Belgium Specialization: Medical Image Processing Thesis: A Decision Support System for the Assessment and Stenting of Tracheal Stenosis.
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- May, 2001 M.Sc. in Software Engineering.
 Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
 Specialization: Computer Graphics
 Thesis: Three Dimensional Reconstruction of Head Models from
 Magnetic Resonance Images.
- September, 1998 B.Sc. in Computer Science
 Universidade Federal Fluminense, Niterói, Brazil
 Specialization: Computer Science.

6 Honours, Awards and Certificates

- Las Vegas, April, 2005 ScrumMaster Certificate.
 France, 2011 French accreditation to teach Computer Science (“qualification
 section 27”).
 France, 2011 French accreditation to teach Image Processing (“qualification
 section 61”).

7 Languages

- Portuguese native
 English fluent (non-native)
 French intermediate level
 Dutch basic level

8 Scientific Publications

Journal papers

- [1] V. Delmon, S. Rit, **R. Pinho**, and D. Sarrut. Registration of sliding objects using direction dependent b-splines decomposition. *Physics in Medicine and Biology*, 58:1303–1314, 2013.
- [2] P. Lo, B. van Ginneken, J. Reinhardt, T. Yavarna, P.A. de Jong, B. Irving, C. Fetita, M. Ortner, **R. Pinho**, J. Sijbers, M. Feuerstein, A. Fabijanska, C. Bauer, R. Beichel, C.S. Mendoza, R. Wiemker, J. Lee, A.P. Reeves, S. Born, O. Weinheimer, E.M. van Rikxoort, J. Tschirren, K. Mori, B. Odry, D.P. Naidich, I. Hartmann, E.A. Hoffman, M. Prokop, J.H. Pedersen, and M. de Bruijne. Extraction of airways from ct (exact’09). *Medical Imaging, IEEE Transactions on*, 31(11):2093–2107, November 2012.
- [3] L. Vanackem, **R. Pinho**, J. Sijbers, and K. Coninx. Force feedback to assist active contour modelling for tracheal stenosis segmentation. *Advances in Human Computer Interaction*, 2012(Article ID 632498):9, 2012.
- [4] **R. Pinho**, K. G. Tournoy, and J. Sijbers. Assessment and stenting of tracheal stenosis using deformable shape models. *Medical Image Analysis*, 15(2):250–266, 2011.

Book chapters

- [1] **R. Pinho**, K. G. Tournoy, and J. Sijbers. Computer-aided assessment and stenting of tracheal stenosis. In Ayman El-Baz and Jasjit S. Suri, editors, *Lung Imaging and Computer Aided Diagnosis*, chapter 16, pages 369–393. CRC Press, Taylor & Francis Group, 2011.

Conference proceedings (full paper)

- [1] D. Sarrut, L. Claude, S. Rit, **R. Pinho**, G. Pitson, and R. Lynch. Investigating mediastinal lymph node stations segmentation on thoracic ct following experts guidelines. In *Image-Guidance and Multimodal Dose Planning in Radiation Therapy*, pages 1–8, Nice, France, October 2012.
- [2] V. Delmon, S. Rit, **R. Pinho**, and D. Sarrut. Direction dependent b-splines decomposition for the registration of sliding objects. In *Proceedings of the Fourth International Workshop on Pulmonary Image Analysis*, pages 45–55, Toronto, Canada, September 2011.
- [3] **R. Pinho**, V. Delmon, J. Vandemeulebroucke, S. Rit, and D. Sarrut. Keuhkot: a method for lung segmentation. In *Proceedings of the Fourth International Workshop on Pulmonary Image Analysis*, pages 225–232, Toronto, Canada, September 2011.
- [4] S. Rit, **R. Pinho**, V. Delmon, M. Pech, G Bouilhol, J. Schaerer, B. Navalpakkam, J. Vandemeulebroucke, P. Seroul, and D. Sarrut. Vv, a 4d slicer. In *Proceedings of the Fourth International Workshop on Pulmonary Image Analysis*, pages 171–175, Toronto, Canada, September 2011.
- [5] **R. Pinho**, K. G. Tournoy, and J. Sijbers. A decision support system for the treatment of tracheal stenosis. In *Proc. of Workshop on Discrete Geometry and Mathematical Morphology (WADGMM)*, pages 72–76, Istanbul, Turkey, August 2010.
- [6] **R. Pinho**, S. Luyckx, and J. Sijbers. Robust region growing based intrathoracic airway tree segmentation. In *2nd International Workshop on Pulmonary Image Analysis*, pages 261–271, London, England, September 2009.
- [7] **R. Pinho**, K. G. Tournoy, R. Gosselin, and J. Sijbers. Assessment of tracheal stenosis using active shape models of healthy tracheas: A surface registration study. In *2nd International Workshop on Pulmonary Image Analysis*, pages 125–136, London, England, September 2009.
- [8] **R. Pinho**, T. Huysmans, W. Vos, and J. Sijbers. Tracheal stent prediction using statistical deformable models of tubular shapes. In *Proc. of SPIE Medical Imaging*, page 69144O, San Diego, CA, USA, February 2008.
- [9] **R. Pinho**, K. J. Batenburg, and J. Sijbers. Seeing through the window: Pre-fetching strategies for out-of-core image processing algorithms. In *Proceedings of SPIE Medical Imaging*, volume 6919, page 69190D, San Diego, CA, USA, February 2008. SPIE.
- [10] **R. Pinho**, J. Sijbers, and T. Huysmans. Segmentation of the human trachea using deformable statistical models of tubular shapes. In *Proc. of Advanced Concepts for Intelligent Vision Systems*, volume 4678 of *Lecture Notes in Computer Science*, pages 531–542, August 2007.
- [11] **R. Pinho**, J. Sijbers, and W. Vos. Efficient approaches to intrathoracic airway tree segmentations. In *Proc. of the Biomedical Engineering IEEE/EMBS Benelux Symposium*, volume 2, pages 151–154, Brussels, Belgium, December 2006.

Conference proceedings (abstract)

- [1] **R. Pinho**, S. Rit, G. Bouilhol, M. Ayadi, M.C. Biston, V. Delmon, L. Claude, and D. Sarrut. Mise-en-scene of a system to control the image workflow in radiotherapy: evaluation of tumour delineation and margin calculation. In *Proceedings of the 17th International Conference on the Use of Computers in Radiation Therapy*, Melbourne, Australia, May 2013. (accepted).
- [2] V. Delmon, S. Rit, J. Vandemeulebroucke, **R. Pinho**, M. Vilà-Oliva, and D. Sarrut. In-room breathing motion estimation from limited projection views using a sliding deformation model. In *Proceedings of the 17th International Conference on the Use of Computers in Radiation Therapy*, Melbourne, Australia, May 2013. (accepted).

- [3] S. Rit, **R. Pinho**, G. Bouilhol, M. Ayadi, M. Biston, L. Claude, and D. Sarrut. Phase II clinical trial comparing mid-position with internal target volume treatment planning. In *ESTRO 31*, Barcelona, Spain, May 2012.
- [4] A. Bernat, T. Huysmans, F. van Glabbeek, J. Sijbers, **R. Pinho**, and J. L. Gielen. Exploring the clavicle: Morphometric differences using a 3d model. In *AAOS Annual Meeting*, Las Vegas, Nevada, February 2009.
- [5] T. Huysmans, A. Bernat, **R. Pinho**, J. Sijbers, F. van Glabbeek, P. M. Parizel, and H. Bortier. A framework for morphometric analysis of long bones: Application to the human clavicle. In *Liege Image Days 2008: Medical Imaging*, March 2008.
- [6] **R. Pinho**, T. Huysmans, W. Vos, and J. Sijbers. Tracheal stent prediction using statistical deformable models of healthy tracheas. In *Liege Image Days 2008: Medical Imaging*, March 2008.

9 Academic Experience

9.1 Teaching

September, 2011	Teacher assistant
June, 2012	Subject: Operating Systems (in French, 16h, practice sessions) Institution: INSA-Lyon
September, 2011	Teacher assistant
June, 2012	Subject: Object Oriented Programming (in English, 45h, theory and practice sessions) Institution: INSA-Lyon

9.2 Supervision of Theses

January, 2009	B.Sc. Thesis of Stijn Peeters (co-supervision)
June, 2009	Title: Automatic segmentation of the airways: Morphological study of the trachea (in Dutch) Institution: University of Antwerp
January, 2009	B.Sc. Thesis of Sten Luyckx (co-supervision)
June, 2009	Title: Automatic segmentation of the airways in 3D CT using cylindrical shape modelling (in Dutch) Institution: University of Antwerp

9.3 Research Projects

January, 2011 March, 2013	Mid-P Project – Centre Léon Bérard, CREATIS, Elekta (France) Post-doc Assistant Researcher Design, development, and deployment of a medical imaging system for image guided radiation therapy against lung cancer. The aim was to carry out a clinical trial for the use of new image registration techniques and their influence on radiation therapy against moving tumours. Multi-platform software development with C++, Qt, ITK, VTK, Python, and shell scripts.
April, 2010 December, 2010	CIMI – iMinds (Belgium) Responsible for and lead researcher of Task 2.1 of WP 3 Development of cache and pre-fetching techniques for out-of-core processing and visualization of large microscopic images.
April, 2010 December, 2010	Segmentor – iMinds (Belgium) Researcher Development of semi-automatic segmentation techniques based on haptics and deformable models for the segmentation of tracheal stenosis.

10 Professional Experience

January, 2001 April, 2006	TV Systems Software Engineer/Researcher R&D Department, TV Globo Ltd. (Rio de Janeiro, Brazil) Design and development of software for general acquisition, compression, storage, processing, and transmission of video and audio signals. Applications were implemented in C/C++ for Win32 and Linux platforms, using various SDKs and libraries including DirectShow SDK, Windows Media SDK, Matrox DigiSuite SDK, MFC, Video4Linux, MySQL.
October, 2001 May, 2003	Software Engineer/Researcher LAMEC – Laboratory of Computational Mechanics, Federal University of Rio de Janeiro (Rio de Janeiro, Brazil) Design and development of a C++, OpenGL/QT-based scientific visualization and geometric modelling system to build 3d models out of simple 3d primitives, to be used in numerical computations.
August, 2000 December, 2000	Software Engineer Publintel S. A. (Rio de Janeiro, Brazil) Development and maintenance of GIS applications. Translation of existing GUI code to the Win32 environment. Design and implementation of a logistics database for automatic vehicle localization, using SQL-Server, C++, STL, MFC, and ADO.
March, 2000 August, 2000	Technology Researcher/Programmer Montreal Informática (Rio de Janeiro, Brazil) Design and implementation of Speech Recognition and biometrics (fingerprint identification) systems. These applications were implemented in C++ and Delphi, using the ORACLE DBMS.

January, 2000 March, 2000	System Analyst/Programmer Delta de Friburgo (Rio de Janeiro, Brazil) I took part in the early design of a profit optimization system for the Brazilian Petroleum Company (PETROBRAS), using C++ and the ORACLE DBMS.
April, 1999 January, 2000	Programmer Brainstorming Ass. e Plan. em Informática (Rio de Janeiro, Brazil) Lead programmer of a database system to control the use of the necessary material for the repair of ships, weapons and for general services inside a Brazilian Navy base in Rio de Janeiro. Development in Delphi/ORACLE.
January, 1998 January, 1999	Game Programmer Z-Movie Studio (Rio de Janeiro, Brazil) Development of 3D educational computer games. Design and implementation of 3D engine, character animation, GUIs and game logic. Implementations in C++ for DirectX 6.0.
October, 1996 January, 1998	Programmer ADD-Labs – Laboratory of Active Document Design, Universidade Federal Fluminense (Niterói, Brazil) Development of a prototype Virtual Reality system built in C/C++ to the Brazilian Petroleum Company (PETROBRAS). The objective was to provide the user with a 3D visualization of oil extraction fields.