

# CURRICULUM VITAE

Alba García Seco de Herrera



## Contact

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|--------------------|------------------------------|
| <b>Title</b>       | MS                           |
| <b>First name</b>  | Alba                         |
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| <b>City</b>        | 3960 Sierre                  |
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## Biography

Alba García Seco de Herrera studied Mathematics at University Complutense of Madrid (Spain). She received a master in Telemedicine and Bioengineering from Technical University of Madrid (Spain) in 2009. Between 2009 and 2011 she was a research assistant at CIEN Foundation and General Electric Healthcare, where she worked in several projects concerning Magnetic Resonance Image treatment. Currently she is in the last year of a PhD at the University of Geneva (Switzerland) under the supervision of Henning Müller. She is a researcher at University of Applied Sciences of Western Switzerland since 2011. Her PhD project aims at designing a medical visual information retrieval system with special focus on system evaluation. In addition, she had good international exchange experiences such as a year at the University of Amsterdam (The Netherlands) and three months at Fudan University (Shanghai, China). Alba was part of the ImageCLEF medical task organization between 2011 and 2013.

## Research Interest

Content-based medical image retrieval and classification; combining text and visual search for multimodal information retrieval; information retrieval evaluation; medical image processing and analysis; neuroimaging; Diffusion Tensor Magnetic Resonance Imaging (DT-MRI)

## Skills

Image based and case based retrieval, Image processing

## Education

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|------|---|
| 2015 | <b>PhD in Computer Science</b><br>University of Geneva, Switzerland                       |
| 2009 | <b>Master in Telemedicine and Bioengineering</b><br>Technical University of Madrid, Spain |
| 2008 | <b>Diploma in Mathematics (5-year degree)</b><br>Complutense University of Madrid, Spain  |

## Experience

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|----------------|--|
| Since 2011     | <b>HES-SO Valais, Sierre</b><br>Research Assistant   |
| 2013           | <b>School of Information Sciences and Technology, Fudan University, Shanghai, China</b><br>Research Exchange |
| 2012           | <b>Swedish Institute of Computer Science (SICS), Stockholm, Sweden</b><br>Research Visit                     |
| 2010 –<br>2011 | <b>General Electric Healthcare, Madrid, Spain</b><br>Research Assistant                                      |
| 2009 –<br>2010 | <b>Rey Juan Carlos University, Madrid, Spain</b><br>Research Assistant                                       |
| 2009           | <b>CIEN Foundation, Madrid, Spain</b><br>Internship  |

## Projects

- 2013 – **MMBB**  
2016 Biomarkers based on Mathematical Models
- 2011 – **Khresmoi (FP7)**  
2014 Medical Information Analysis & Retrieval
- 2011 – **WIDTH: Warehousing Images in the Digital Hospital (Marie Curie)**  
2014 Researcher exchange between Europe and China on medical image retrieval
- 2011 – **PROMISE: Participative Research LabOratory for Multimedia and Multilingual Information Systems Evaluation (FP7)**  
2013 Multilingual and multimodal information retrieval evaluation
- 2010 – **Mathematical Methods in Anatomy and Computational Physiology**  
2012 Computational Anatomy of the variation of the human brain
- 2009 – **Alzheimer Project, The Queen Sofia Foundation (phase III)**  
2010 Medical Image Post-processing Neuroimage Laboratory
- 2009 – **Alzheimer project, The Queen Sofia Foundation (phase II)**  
2010 Laboratory of Advanced Analysis of Medical Image and Bioengineering

## Teaching activities – Courses

- Since 2009 **Distance Learning Programs**  
Bircham International University
- 2007 – **Differential Calculus**  
2008 Diploma in Mathematics, Complutense University of Madrid
- 2002 – **Mathematics**  
2010 Private Tuition

## ■ Publications – Book chapters

- 2014 **Meaningful bags of words for medical image classification and retrieval**  
 Antonio Foncubierta-Rodríguez, Alba García Seco de Herrera and Henning Müller  
 In Comprehensive Health Monitoring and Personalized Feedback Using Multimedia Data
- 2014 **Fusion techniques in biomedical information retrieval**  
 Alba García Seco de Herrera and Henning Müller  
 In Fusion in Computer Vision  
 Bogdan Ionescu, Jenny Benois-Pineau, Tomas Piatrik and Georges Quénot (Edts)

## ■ Publications – Journal articles

- 2014 **Comparing fusion techniques for the ImageCLEF 2013 medical case retrieval task**  
 Alba García Seco de Herrera, Roger Schaer, Dimitrios Markonis, and Henning Müller  
 Computerized Medical Imaging and Graphics
- 2014 **Evaluating Performance of Biomedical Image Retrieval Systems –an Overview of the Medical Image Retrieval task at ImageCLEF 2004-2014**  
 Jayashree Kalpathy-Cramer, Alba García Seco de Herrera, Dina Demner-Fushman, Sameer Antani, Steven Bedrick and Henning Müller  
 Computerized Medical Imaging and Graphics
- 2010 **Different Gray Matter Patterns in Chronic Schizophrenia and Chronic Bipolar Disorder Patients Identified Using Voxel-Based Morphometry**  
 Vicente Molina, Gemma Galindo, Benjamín Cortés, Alba García Seco de Herrera, Ana Ledo, Javier Sanz, Carlos Montes and Juan Antonio Hernández-Tamames  
 European Archives of Psychiatry and Clinical Neuroscience
- 2010 **Optimized voxel Brain Morphometry: Association Between Brain Volumes and the Response to Atypical Antipsychotics**  
 Vicente Molina, Carmen Martín, Alejandro Ballesteros, Alba García Seco de Herrera and Juan Antonio Hernández-Tamames  
 European Archives of Psychiatry and Clinical Neuroscience

## Publications – Conference and workshop papers

- 2014 **Crowdsourcing for medical image classification**  
 Alba García Seco de Herrera, Antonio Foncubierta-Rodríguez, Dimitrios Markonis, Roger Schaer, and Henning Müller  
 Proceedings of the Annual Congress SGMI, Bern, Switzerland
- 2014 **2D-based 3D volume retrieval using singular value decomposition of detected regions**  
 Alba García Seco de Herrera, Antonio Foncubierta-Rodríguez, Emanuele Schiavi and Henning Müller.  
 Proceedings of the MICCAI workshop MCBR-MCV, Nagoya, Japan
- 2013 **Bag of colors for biomedical document image classification**  
 Alba García Seco de Herrera, Dimitrios Markonis, and Henning Müller.  
 Proceedings of the MICCAI workshop MCBR-CDS, Nice, France
- 2013 **Medical Image Retrieval using Bag of Meaningful Visual Words: Unsupervised visual vocabulary pruning with PLSA**  
 Antonio Foncubierta-Rodríguez, Alba García Seco de Herrera and Henning Müller  
 Proceedings of the Workshop on Multimedia Information Indexing and Retrieval for Healthcare, ACM Multimedia, Barcelona, Spain
- 2013 **Overview of the ImageCLEF 2013 medical tasks,**  
 Alba García Seco de Herrera, Jayashree Kalpathy-Cramer, Dina Demner-Fushman, Sameer Antani and Henning Müller  
 Proceedings of the CLEF 2013, Valencia, Spain, 2013
- 2013 **The medGIFT Group in ImageCLEFmed 2013**  
 Alba García Seco de Herrera, Dimitrios Markonis, Roger Schaer, Ivan Eggel and Henning Müller  
 Proceedings of the CLEF 2013, Valencia, Spain
- 2013 **Khresmoi – multilingual semantic search of medical text and images**  
 Niraj Aswani, Thomas Beckers, Erich Birngruber, Célia Boyer, Andreas Burner, Jakub Bystroň, Khalid Choukri, Sarah Cruchet, Hamish Cunningham, Jan Dědek, Ljiljana Dolamic, René Donner, Sebastian Dungs, Ivan Eggel, Antonio Foncubierta-Rodríguez, Norbert Fuhr, Adam Funk, Alba García Seco de Herrera, Arnaud Gaudinat, Georgi Georgiev, Julien Gobeill, Lorraine Goeuriot, Paz Gómez, Mark Greenwood, Manfred Gschwandtner, Allan Hanbury, Jan Hajič, Jaroslava Hlaváčová, Markus Holzer, Gareth Jones, Blanca Jordan, Matthias Jordan, Klemens Kaderk, Franz Kainberger, Liadh Kelly, Sascha Kriewel, Marlene Kritz, Georg Langs, Nolan Lawson, Dimitrios Markonis, Ivan Martinez, Vassil Momtchev, Alexandre Masselot, Hélène Mazo, Henning Müller, João Palotti, Pavel Pecina, Konstantin Pentchev, Deyan Peychev, Natalia Pletneva, Diana Pottecher, Angus Roberts, Patrick Ruch, Alexander Sachs, Matthias Samwald, Priscille Schneller, Veronika Stefanov, Miguel A. Tinte, Zdeňka Urešová, Alejandro Vargas and Dina Vishnyakova  
 Proceedings of the MedInfo, Copenhagen, Denmark

- 2013 **Khresmoi Professional: Multilingual Semantic Search for Medical Professionals**  
 Niraj Aswani, Thomas Beckers, Erich Birngruber, Célia Boyer, Andreas Burner, Jakub Bystroň, Khalid Choukri, Sarah Cruchet, Hamish Cunningham, Jan Dědek, Ljiljana Dolamic, René Donner, Sebastian Dungs, Ivan Eggel, Antonio Foncubierta-Rodríguez, Norbert Fuhr, Adam Funk, Alba García Seco de Herrera, Arnaud Gaudinat, Georgi Georgiev, Julien Gobeill, Lorraine Goeuriot, Paz Gomez, Mark Greenwood, Manfred Gschwandtner, Allan Hanbury, Jan Hajič, Jaroslava Hlaváčová, Markus Holzer, Gareth Jones, Blanca Jordan, Matthias Jordan, Klemens Kaderk, Franz Kainberger, Liadh Kelly, Sascha Kriewel, Marlene Kritz, Georg Langs, Nolan Lawson, Dimitrios Markonis, Iván Martinez, Vassil Momtchev, Alexandre Masselot, Hélène Mazo, Henning Müller, João Palotti, Pavel Pecina, Konstantin Pentchev, Deyan Peychev, Natalia Pletneva, Diana Pottecher, Angus Roberts, Patrick Ruch, Alexander Sachs, Matthias Samwald, Priscille Schneller, Veronika Stefanov, Miguel Angel Tinte, Zdeňka Urešová, Alejandro Vargas and Dina Vishnyakova  
 Proceedings of the SIGIR workshop on Health Data Discovery, Dublin, Ireland
- 2012 **Multi-scale visual words for hierarchical medical image categorization**  
 Dimitrios Markonis, Alba García Seco de Herrera, Ivan Eggel and Henning Müller  
 Proceedings of the SPIE Medical Imaging 2012: Advanced PACS-based Imaging Informatics and Therapeutic Applications, San Diego, CA, USA
- 2012 **Overview of the ImageCLEF 2012 medical image retrieval and classification tasks**  
 Henning Müller, Alba García Seco de Herrera, Jayashree Kalpathy-Cramer, Dina Demner-Fushman, Sameer Antani and Ivan Eggel  
 Proceedings of the CLEF 2012, Rome, Italy
- 2012 **The medGIFT Group in ImageCLEFmed 2012**  
 Alba García Seco de Herrera, Dimitrios Markonis, Ivan Eggel and Henning Müller  
 Proceedings of the CLEF 2012, Rome, Italy
- 2012 **Khresmoi: Multimodal Multilingual Medical Information Search**  
 Niraj Aswani, Thomas Beckers, Erich Birngruber, Célia Boyer, Andreas Burner, Jakub Bystroň, Khalid Choukri, Sarah Cruchet, Hamish Cunningham, Jan Dědek, Ljiljana Dolamic, René Donner, Sebastian Dungs, Ivan Eggel, Antonio Foncubierta-Rodríguez, Norbert Fuhr, Adam Funk, Alba García Seco de Herrera, Arnaud Gaudinat, Georgi Georgiev, Julien Gobeill, Lorraine Goeuriot, Paz Gómez, Mark Greenwood, Manfred Gschwandtner, Allan Hanbury, Jan Hajič, Jaroslava Hlaváčová, Markus Holzer, Gareth Jones, Blanca Jordan, Matthias Jordan, Klemens Kaderk, Franz Kainberger, Liadh Kelly, Sascha Kriewel, Marlene Kritz, Georg Langs, Nolan Lawson, Dimitrios Markonis, Iván Martinez, Vassil Momtchev, Alexandre Masselot, Hélène Mazo, Henning Müller, Pavel Pecina, Konstantin Pentchev, Deyan Peychev, Natalia Pletneva, Diana Pottecher, Angus Roberts, Patrick Ruch, Matthias Samwald, Priscille Schneller, Veronika Stefanov, Miguel A. Tinte, Zdeňka Urešová, Alejandro Vargas and Dina Vishnyakova  
 Proceedings of the 24th International Conference of the European Federation for Medical Informatics
- 2011 **Assessing the Scholarly Impact of ImageCLEF**  
 Theodora Tsikrika, Alba García Seco de Herrera and Henning Müller  
 Proceedings of the CLEF 2011, Amsterdam, The Netherland
- 2011 **Effect of Multichannel Inverse Scaling Denoising in Detection of Injured White Matter in Fractional Anisotropy Maps**  
 Alba García Seco de Herrera, Juan Francisco Garamendi, Gonzalo Pajares, Emanuele Schiavi and Juan Antonio Hernández-Tamames  
 Proceedings of the 10th International Conference on Alzheimer's & Parkinson's Diseases (AD/PD), Barcelona, Spain

- 2011 **Medical Images Rician Based Denoising**  
 Adrian Martín, Juan Francisco Garamendi, Alba García Seco de Herrera and Emanuele Schiavi  
 Proceedings of the CEDyA (XXII Congreso de Ecuaciones Diferenciales y Aplicaciones), Palma de Mallorca, Spain
- 2011 **Overview of the CLEF 2011 medical image classification and retrieval tasks**  
 Jayashree Kalpathy-Cramer, Henning Müller, Steven Bedrick, Ivan Eggel, Alba García Seco de Herrera and Theodora Tsikrika  
 Proceedings of the CLEF 2011, Amsterdam, The Netherlands
- 2011 **The MedGIFT group at ImageCLEFmed 2011**  
 Dimitrios Markonis, Alba García Seco de Herrera, Ivan Eggel and Henning Müller  
 Proceedings of the CLEF 2011, Amsterdam, The Netherlands
- 2010 **Filtrado Multicanal de Ruido en DWI Mediante Variación Total e Iteraciones de Bregman**  
 Alba García Seco de Herrera, Juan Francisco Garamendi, Emanuele Schiavi and Juan Antonio Hernández-Tamames  
 Proceedings of the CASEIB 2010 (XXVIII Congreso Anual de la Sociedad Española de Ingeniería Biomédica), Madrid, Spain
- 2010 **Traumatic Brain injury rehabilitation in the chronic stage: changes in brain volume and BOLD signal**  
 Marcos Ríos, Alba García Seco de Herrera, Jose García, Juan Antonio Hernández-Tamames and Emanuele Schiavi  
 Proceedings of the 16th Annual Meeting of the Organization for Human Brain Mapping (HBM), Barcelona, Spain
- 2009 **Neuropsychological and imaging (MR) biomarkers in the early detection of Mild Cognitive Impairment (MCI)**  
 Juan Álvarez-Linera, Juan Antonio Hernández-Tamames, Alberto Rábano, M<sup>a</sup> Carmen Díaz, Alba García Seco de Herrera, Eva Alfayate, Susana García, Jose Luis Dobato and Herminia Peraita  
 Proceedings of the 3rd World Congress on Controversies in Neurology (CONy), Prague, Czech Republic