



William Robson Schwartz

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William Robson Schwartz is an Associate Professor in the Department of Computer Science at the Federal University of Minas Gerais, Brazil. He is recipient of the Productivity Fellowship sponsored by the Brazilian National Research Council (CNPq) since 2013 and is recipient of the Minas Gerais State Researcher Fellowship sponsored by the Minas Gerais Research Foundation (FAPEMIG) since 2015. He received his BSc and MSc degrees in Computer Science from the Federal University of Parana, Curitiba, Brazil in 2003 and 2005. He received his PhD degree in Computer Science from the University of Maryland, College Park, USA in 2010. Then, he spent one year in the Institute of Computing at the University of Campinas as a Postdoctoral researcher.

He is the leader of the Visual Pattern Recognition research group in CNPq and belongs to the Brazilian Special Commission of Computer Graphics and Image Processing (CEGRAPI). His research interests include Computer Vision, Smart Surveillance, Computer Forensics, Machine Learning and Biometrics. He is also the head of the Smart Surveillance Interest Group (SSIG)¹, a research group focusing on large-scale surveillance problems, and advises several Master's and PhD students who focus their research on Computer Forensics and Smart Surveillance with the employment and the development of Machine Learning and Computer Vision techniques. Dr. Schwartz has presented results of his research as keynote speaker at the Brazilian Workshop on Computer Vision (2014) and at the Integrated Conference ICCyber and ICMedia (2015), and teaching the Graduate courses Looking at People, Visual Pattern Recognition and Topics on Biometrics and Surveillance.

He is among few researchers in Brazil working on problems in Surveillance and Computer Forensics. He has published more than 140 scientific papers on these areas in important conferences and journals, such as ICCV, ECCV, BMVC, WACV, ICIP, ICASSP, FG, IEEE Transactions on Image Processing, IEEE Transactions on Information Forensics and Security, Elsevier Neurocomputing, Journal of Mathematical Imaging and Vision. He also is the coauthor of a book on Image Processing written in Portuguese, used as a textbook in undergraduate courses by many Brazilian Universities. According to Google Scholar², such publications have received more than 2,300 citations up-to-date.

Dr. Schwartz has a large experience on Surveillance and Computer Forensics due to his participation on many research projects, initially during his PhD at University of Maryland, USA, under supervision of Dr. Larry Davis. He participated of the project entitled *Face Recognition in the Maritime Domain* sponsored by the Office of Naval Research, in which he developed a new algorithm for face identification. He also participated of the project entitled *Video Activity and Content Analysis* sponsored by the Intelligence Advanced Research Projects, in which he developed an approach to reduce computational cost of pedestrian tracking, developed a pedestrian detector based on Partial Least Squares achieving state-of-the-art results, and a person detector combining face and body information.

¹ <http://www.ssig.dcc.ufmg.br/>

² <https://scholar.google.com/citations?user=koXKq5EAAAAJ>

In 2011, he worked on his postdoctoral research at University of Campinas, Brazil. This project focused on the development and use of combinations of low-level feature descriptors to applications such as face verification and pedestrian detection. After joining the Computer Science Department at Federal University of Minas Gerais in 2012, he developed novel approaches to person re-identification, 3D feature descriptors, activity recognition, face recognition, person re-identification, face spoofing detection and worked on the development of a framework to aid researchers develop algorithms related to surveillance.

Besides participating of many research projects, he is the coordinator of several projects related to Surveillance and Forensics sponsored by Brazilian Research Funding Agencies such the Minas Gerais Research Foundation (FAPEMIG), the Brazilian National Research Council (CNPq) and the Brazilian Coordination for the Improvement of Higher Education Personnel (CAPES). In addition, he coordinates large R&D projects with multinational companies on the context of activity recognition and smart surveillance using visual and non-visual data. These projects have provided BRL 2,419,351.00 in research grants.

Dr. Schwartz has served as reviewer for several journals and conferences, including, IEEE Transactions on Image Processing, Elsevier Neurocomputing, Elsevier Computer Vision and Image Understanding, the Conference on Computer Vision and Pattern Recognition, International Conference on Computer Vision, and IAPR International Conference on Pattern Recognition. He was chair of the 3rd Computational Forensics Workshop in 2014, the Program Chair of the 29th Conference on Graphics, Patterns and Images (SIBGRAPI), and chair of the Workshop of Theses and Dissertations (within the 27th Conference on Graphics, Patterns and Images in 2014). He served in the Program Committee for several Conference, including the IEEE International Conference on Biometrics: Theory, Applications and Systems (BTAS), the IEEE International Conference on Automatic Face and Gesture Recognition (FG), and the Asian Conference on Computer Vision (ACCV). He was also the Guest Editor for the Special Issue on Data Representation and Representation Learning for Video Analysis of the Elsevier Pattern Recognition Letters.

Selected Publications:

S Hu, J. Choi, A.L. Chan, **W.R. Schwartz**. Thermal-to-visible Face Recognition using Partial Least Squares. *JOSA A* 32 (3), 431-442, 2015. (28 citations)

W.R. Schwartz, H. Guo, J. Choi, L.S. Davis. Face Identification Using Large Feature Sets. *IEEE Transactions on Image Processing*, 21 (4), 2245-2255, 2012. (67 citations)

W.R. Schwartz, A. Kembhavi, D. Harwood, L. S. Davis. Human detection using partial least squares analysis. *IEEE 12th international conference on Computer vision*, 24-31, 2009. (516 citations)

W.R. Schwartz, L.S. Davis. Learning discriminative appearance-based models using partial least squares. *XXII Brazilian Symposium on Computer Graphics and Image Processing*, 2009. (326 citations)

H. Pedrini, **W.R. Schwartz**. *Análise de imagens digitais: princípios, algoritmos e aplicações* (in Portuguese). Thomson Learning. 509 pp., 2008. (232 citations)

D. Menotti, G. Chiachia, A. Pinto, **W.R. Schwartz**, H. Pedrini, A. F. Xavier, A. Rocha. Deep Representations for Iris, Face, and Fingerprint Spoofing Detection. *IEEE Transactions on Information Forensics and Security*, 2015. (77 citations)

Last updated: July 25, 2017