

## Adrien Besson

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CONTACT INFORMATION	Signal Processing Laboratory (LTS 5) EPFL-STI-IEL-LTS5, Station 11 CH-1015 Lausanne	Tel: +41 21 69 35672 adrien.besson@epfl.ch <a href="https://adribesson.github.io/">https://adribesson.github.io/</a>
RESEARCH INTERESTS	Ultrasound imaging, compressed sensing, convex optimization, inverse problems, deep learning	
EDUCATION	<b>Ecole Polytechnique Fédérale de Lausanne</b> , Lausanne, Switzerland	
	Ph.D., <i>Ultrasound imaging</i> , <i>Expected</i> : Spring 2019	
	<ul style="list-style-type: none"><li>• Thesis Topic: <i>Compressed-sensing for ultrasound imaging</i></li><li>• Advisors: Prof. Jean-Philippe Thiran and Prof. Yves Wiaux</li></ul>	
	M.Sc., <i>Electrical Engineering</i> , Aug 2013	
	<ul style="list-style-type: none"><li>• Thesis: <i>Development of an anti-fraud module for a fingerprint sensor</i></li><li>• Advisors: Prof. Pascal Frossard and Jérôme Lorenzi (Morpho)</li></ul>	
	<b>Supélec</b> , Gif-sur-Yvette, France	
	Engineering Diploma, <i>Electrical Engineering</i> , Aug 2013	
RESEARCH AND PROFESSIONAL EXPERIENCE	<b>Research Assistant</b> Signal Processing Laboratory (LTS 5), Ecole Polytechnique Fédérale de Lausanne	January 2015 to present
	<b>R&amp;D engineer</b> Center for Excellence of Terminals, Morpho S.A. <b>Mission:</b> Operational research for the design of the checkpoint of the future	June 2013 to Jan 2015
	<b>Engineering intern</b> Center for Excellence of Terminals, Morpho S.A. <b>Mission:</b> Development of an anti-fraud module for a fingerprint sensor	January 2013 to June 2013
	<b>Research Intern</b> Multimedia Signal Processing Group (MMSPG), Ecole Polytechnique Fédérale de Lausanne <b>Mission:</b> Objective quality metrics for scalable video coding	January 2012 to June 2012
HONORS AND AWARDS	<ul style="list-style-type: none"><li>• First prize at the <b>PICMUS</b> challenge</li><li>• LEM prize for student excellence</li><li>• Anna Barbara Reinhard prize for student excellence</li></ul>	Sep 2016 Sep 2013 Sep 2013
PRESENTATIONS	International Conferences	
	<ul style="list-style-type: none"><li>• International Conference on Image Processing, Phoenix, USA</li><li>• International Ultrasonics Symposium, Tours, France</li><li>• European Signal Processing Conference, Budapest, Hungary</li><li>• International Ultrasonics Symposium, Taipei, Taiwan</li></ul>	Sep 2016 Sep 2016 Aug 2016 Sep 2015
	Workshops	
	<ul style="list-style-type: none"><li>• International BASP Frontiers workshop, Villars sur Ollon, Switzerland</li><li>• 2<sup>nd</sup> Swiss Medical Image Computing Day, Bern, Switzerland</li></ul>	Jan 2017 Nov 2016

TEACHING EXPERIENCE	Students supervised at EPFL (co-supervised with Prof. Jean-Philippe Thiran)	
	Philippe Rossinelli	Fall 2016
	• Learning optimal thresholding parameters	
	Marc Beusch (with TIK at ETHZ)	Fall 2016
	• Parallelization of Compressed Sensing Based Ultrasound Imaging	
	Benjamin Beck	Fall 2016
	• Extension of the compressed sensing based demonstrator to diverging wave imaging	
	Florian Martinez	Spring 2016
	• Methods for accelerated reconstruction of ultrasound images based on compressed sensing on GPU	
	Eric F. Bezzam	Spring 2016
PROFESSIONAL ACTIVITIES AND SERVICE	• Development of a Compressive Sensing Based Beamforming Demonstrator for 2D Ultrasound Plane Wave Imaging	
	Louis Sarazin	Fall 2015
	• Optimization of Compressed Sensing Based Ultrafast Ultrasound Imaging Algorithms	
	Teaching Assistant	
	EE-350 - Signal Processing	Falls 2015–16
	Instructors: Prof. Frossard and Prof. Thiran	
	Electrical and Electronics Engineering, Ecole Polytechnique Fédérale de Lausanne	
	EE-451 - Image Analysis and Pattern Recognition	
	Instructor: Prof. Thiran	Spring 2015
	Electrical and Electronics Engineering, Ecole Polytechnique Fédérale de Lausanne	
PUBLICATIONS	Professional societies	
	• Institute of Electrical and Electronic Engineers (IEEE)	
	Student Member (2015-present)	
	Reviewer for conferences	
	• EUSIPCO 2016	
	• IEEE ICASSP 2017	
	Journal	
	1. <b>A. Besson</b> , M. Zhang, F. Varray, H. Liebgott, D. Friboulet, Y. Wiaux, J.-Phi. Thiran, R. E. Carrillo and O. Bernard "A Sparse Reconstruction Framework for Fourier-Based Plane-Wave Imaging," <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , vol. 63, no. 12, pp. 2092-2106, dec 2016.	
	2. M. Zhang, F. Varray, <b>A. Besson</b> , R. E. Carrillo, M. Viallon, D. Garcia, J.-Phi. Thiran, D. Friboulet, H. Liebgott and O. Bernard "Extension of Fourier-Based Techniques for Ultrafast Imaging in Ultrasound With Diverging Waves," <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , vol. 63, no. 12, pp. 2125-2137, dec 2016.	
	Conference, symposium and workshop	
	1. <b>A. Besson</b> , R. E. Carrillo, D. Perdios, M. Arditi, Y. Wiaux and J.-Phi. Thiran "A compressed-sensing approach for ultrasound imaging", submitted to <i>2017 Signal Processing with Adaptive Sparse Structured Representations (SPARS) workshop</i> , jun 2017.	
	2. Z. Chen, <b>A. Besson</b> , J.-Phi. Thiran and Y. Wiaux "Beamforming-deconvolution: A novel concept of deconvolution for ultrasound imaging," <i>International Biomedical and Astronomical Signal Processing Frontiers workshop (BASP)</i> , jan 2017.	

3. **A. Besson**, R. E. Carrillo, O. Bernard, Y. Wiaux and J.-Phi. Thiran "Compressed delay-and-sum beamforming for ultrafast ultrasound imaging," *2016 IEEE International Conference on Image Processing (ICIP)*, sep 2016.
4. **A. Besson**, R. E. Carrillo, D. Perdios, M. Arditi, O. Bernard, Y. Wiaux and J.-Phi. Thiran "A compressed beamforming framework for ultrafast ultrasound imaging," *2016 IEEE International Ultrasonics Symposium (IUS)*, sep 2016.
5. **A. Besson**, R. E. Carrillo, D. Perdios, E. F. Bezzam, M. Arditi, Y. Wiaux and J.-Phi. Thiran "Morphological component analysis for sparse regularization in plane wave imaging," *2016 IEEE International Ultrasonics Symposium (IUS)*, sep 2016.
6. **A. Besson**, R. E. Carrillo, M. Zhang, D. Friboulet, O. Bernard, Y. Wiaux and J.-Phi. Thiran "Sparse regularization methods in ultrafast ultrasound imaging," *2016 24th European Signal Processing Conference (EUSIPCO)*, aug 2016.
7. M Zhang, **A. Besson**, R. E. Carrillo, F. Varray, M. Viallon, H. Liebgott, J.-Phi. Thiran, D. Friboulet and O. Bernard "Extension of Ultrasound Fourier Slice Imaging theory to sectorial acquisition," *2015 IEEE International Ultrasonics Symposium (IUS)*, oct 2015.
8. R. E. Carrillo, **A. Besson**, M. Zhang, D. Friboulet, Y. Wiaux, J.-Phi. Thiran and O. Bernard "A Sparse regularization approach for ultrafast ultrasound imaging" *2015 IEEE International Ultrasonics Symposium (IUS)*, oct 2015.
9. **A. Besson**, F. De Simone and T. Ebrahimi "Objective quality metrics for video scalability," *2013 IEEE International Conference on Image Processing*, sep 2013.

#### Patent

1. **A. Besson**, A. Thiebot, D. Dumont and J. Lorenzi "Method of validation intended to validate that an element is covered by a true skin," *WO 2015091701 A1*, 2015.

LANGUAGE SKILLS      French (native), English (advanced), and Spanish (basic)