

Curriculum Vitæ

Alexandre BOUSSE

1 Personal Details

First Name:	Alexandre
Family Name:	Bousse
Date of Birth:	13th of June 1980
Place of Birth:	Rennes, France
Citizenship:	French
Current Position:	Lecturer (Associate Professor), <i>Université de Bretagne Occidentale</i> (UBO), Brest, France
Research Institute:	<i>Laboratoire de Traitement de l'Information Médicale</i> (LaTIM) INSERM, UMR 1101, Brest, France
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2 Qualifications

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| 2019 | <p><i>Habilitation à diriger des recherches</i> (habilitation thesis), LaTIM, INSERM, UMR 1101, UBO, Brest, France</p> <p>Title: “<i>Contributions à la reconstruction tomographique</i>”</p> <p>Viva: 07/10/2019</p> <p>Jury:</p> <ul style="list-style-type: none">• Dimitris Visvikis, LaTIM, INSERM, UMR 1101, <i>Université de Bretagne Occidentale</i>, Brest, France• Françoise Pène, UBO, Brest, France• Claude Comtat, <i>Commissariat à l'Énergie Atomique et aux énergies alternatives</i> (CEA), Orsay, France• Andrew Reader, King's College London, London, UK• Michel Defrise, <i>Université Libre de Bruxelles</i>, Brussels, Belgium |
| 2018 | <p><i>Maître de conférences</i> (associate professor)</p> <p>Section 61, <i>génie informatique, automatique et traitement du signal</i></p> <p>Candidate number: 18261293118</p> |

3 Academic Career

3.1 Professional Experience

2018–present	Associate Professor , LaTIM, INSERM, UMR 1101, UBO, Brest, France
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2009–2018	Post-doctorate , Insitute of Nuclear Medicine, University College London (UCL), London, UK
2005–2008	PhD Candidate , <i>Laboratoire du Traitement du Signal et de l'Image</i> (LTSI), INSERM, UMR 1099, <i>Université de Rennes 1</i> , Rennes, France

3.2 Education

2005–2008	PhD , Signal Processing, LTSI, UMR 1099, <i>Université de Rennes 1</i> , Rennes, France, and Laboratory of Image Science and Technology (LIST), Southeast University (SEU), Nanjing, China Title: “Inverse Problems and Application to Motion-Compensated Rotational X-ray Angiography” Viva: 08/12/2008 Jury: <ul style="list-style-type: none"> • Directors: <ul style="list-style-type: none"> – J.-L. Coatrieux, LTSI, INSERM, UMR 1099, <i>Université de Rennes 1</i>, Rennes, France – H. Shu, LIST, SEU, Nanjing, China – C. Toumoulin, LTSI, INSERM, UMR 1099, <i>Université de Rennes 1</i>, Rennes, France • President: J. Demongeot, <i>Université Joseph Fourier</i>, Grenoble, France • Referees: <ul style="list-style-type: none"> – J. Yang, Nanjing University of Science and Technology, Nanjing, China – C. Roux, <i>Télécom Bretagne</i>, Brest, France • Reviewers: <ul style="list-style-type: none"> – L. Luo, LIST, SEU, Nanjing, China – D. Xia, Nanjing University of Science and Technology, Nanjing, China
2004–2005	Research Master of Science, Statistics , <i>Université de Rennes 1</i> , Rennes, France, with honours
2003–2004	Advanced Master of Science, Statistics , <i>Université de Rennes 1</i> , Rennes, France, with honours
1998–2003	Bachelor of Science, Mathematics , <i>Université de Rennes 1</i> , Rennes, France, with honours

4 Teaching Activities and PhD Supervision

4.1 Teaching

2018–present	Coordinator of <i>Master Signaux Images en Biologie et Médecine</i> (SIBM) at UBO
2018–present	Image Processing First of year Engineering School at IMT <i>Atlantique</i> , Brest, France M1 <i>biologie-santé</i> & M2 SIBM, UBO and IMT <i>Atlantique</i> , Brest, France Teaching topics: image processing, reconstruction and segmentation
2018–present	Image Reconstruction M2 <i>physique et instrumentation</i> , UBO, Brest, France Teaching topics: algorithmic for PET image reconstruction
2018–present	Pix

	Medical and Dental School, UBO, Brest, France Teaching topics: digital tools and the Internet
2005–2007	Probability (contractual teaching during PhD) First of year Engineering School, ENSAI, Rennes, France Math and Economy Section Teaching topics: measure theory, Lebesgue measure, probability spaces, random variables, Banach and Hilbert spaces, harmonic analysis
2004–2005	Statistics (contractual teaching during PhD) First of year Engineering School, ENSAI, Rennes, France Economy Section Teaching topics: parametric estimation, statistical hypothesis testing, linear regression

4.2 PhD Supervision and Co-supervision

2018–present	Sai Sundar Kandarpa, UBO (co-supervision) “PET Image Reconstruction using Deep-Learning” Supervisor: Dimitris Visvikis Status: ongoing
2018–present	Suxer Alfonso Garcia, UBO (co-supervision) “Dual Energy CBCT Reconstruction for Dose Computation in Radiotherapy” Supervisor: Mathieu Hatt Status: ongoing
2017–present	Debora Giovagnoli, IMT <i>Atlantique</i> (co-supervision) “3- γ Image Reconstruction using LXe Compton camera XEMIS2” Supervisor: Dimitris Visvikis Status: ongoing
2017–present	Baptiste Laurent, UBO (co-supervision) “ <i>Estimation des diffusés en TEP par apprentissage profond</i> ” Supervisor: Nicolas Boussion Status: ongoing
2016–present	Élise Émond, UCL (co-supervision) “Improving Quantification of Dynamic PET/CT Biomarkers in the Fibrotic Lung for the Evaluation of Disease Progression and Treatment Effectiveness” Supervisor: Kris Thielemans Status: ongoing
2016–present	Ludovica Brusafferri, UCL (co-supervision) “Estimating Lung Density from PET Data” Supervisor: Kris Thielemans Status: ongoing
2015–2019	Yu-Jung Tsai, UCL (co-supervision) “Improvement of the Quantification Accuracy in PET/CT” Supervisor: Kris Thielemans Status: completed
2010–2015	Sarah Cade, UCL (co-supervision) “Attenuation Correction of Myocardial Perfusion Scintigraphy Images without Transmission Scanning” Supervisor: Brian F. Hutton

Status: completed

5 Grants and External Funding

10/09/2019–present	France Life Imaging WP4 Amount awarded: 7,000€ Project Title: “Dual-Tracer in Dynamic PET” (complement funding to the <i>Émergence</i> project) Role: PI
18/02/2019–present	AO <i>Émergence Cancéropôle grand ouest</i> Amount awarded: 15,000€ Project Title: “Dual-Tracer in Dynamic PET” Role: PI
2016–2018	GE Healthcare Amount awarded: \$150,000 Project Title: “Motion-Compensated PET/CT” PI: Kris Thielemans Role: co-PI
2013–2015	Spectrum Dynamics Project Title: “Joint Activity and Attenuation Reconstruction in SPECT Using Scatter” PI: Brian F. Hutton Role: WP leader
2013–2015	FP7 – HEALTH Program 305311 Project Title: “Design of a clinical brain SPECT/MRI INSERT” Supervisor: Brian F. Hutton Role: Research Fellow
2013–2016	EPSRC – EP/K005278/1 Amount awarded: £1,274,298 PI: Brian F. Hutton Project Title: “Exploiting the Unique Quantitative Capabilities Offered by Simultaneous PET/MRI” Role: WP leader
2009–2013	EPSRC – EP/G026483/1 Amount awarded: £767,088 Project Title: “Optimising Reconstruction to Accommodate Complex System Models for Emission Tomography” PI: Brian F. Hutton Role: Research Fellow

6 Academic Service and Scientific Diffusion

6.1 Meetings Organisation

2018	Session Chairman , IEEE Nuclear Science Symposium and Medical Imaging Conference
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6.2 International Partnerships

As part of an exchange program between *Université de Rennes 1* and Nanjing Southeast University, I spent one year and a half in Nanjing, China, where my PhD viva took place. Other partnerships include:

- PhD in partnership with SEU, Nanjing, China
- Spectrum Dynamics, Caesarea, Israel
- GE Healthcare, Waukesha, WI, USA
- INSERT project: Mediso (Budapest, Hungary), CROmed (Budapest, Hungary) Nuclear-Fields (Vortum-Mullem, Netherlands)
- Department of Mathematics of *Pontificia Universidad Católica de Chile*, Santiago, Chile

6.3 Reviewer

6.3.1 Journals and Conferences

- IEEE Transactions on Medical Imaging
- IEEE Transactions on Biomedical Imaging
- IEEE Transactions on Radiation and Plasma Medical Sciences
- IEEE Medical Imaging Conference 2014, 2015, 2016 and 2018
- Physics in Medicine and Biology
- Neuroimage
- PLOS one

6.3.2 Grant Application Schemes

- Nantes Excellence Trajectory (NEXT)
- *Wetenschappelijk Fonds Willy Gepts* (WFWG)
- Netherlands Organisation for Scientific Research (NWO)

6.4 Recent Invited Talks

Jul. 2019	“Innovations in Image Reconstruction”, LaTIM, Brest, France
Feb. 2019	“ <i>Reconstruction d’image en tomographie à émission de positons par maximum de vraisemblance avec compensation du mouvement respiratoire</i> ”, <i>Laboratoire de Mathématiques de Bretagne Atlantique</i> , Brest, France
Jun. 2018	“Respiratory Motion Correction in PET/CT and PET/MR”, Mathematical Methods for Spatiotemporal Imaging, SIAM Conference on Imaging Science 2018, Bologna, Italy
Mar. 2017	“Maximum-Likelihood PET Reconstruction and Motion Estimation”, <i>Pontificia Universidad Católica de Chile</i> , Santiago, Chile
Sept. 2016	“Direct Motion Compensation in Attenuation-Corrected PET/CT and PET/MR Reconstruction”,

	UCL PET/MR Methods Symposium, London, UK
May 2016	“ <i>Reconstruction en PET-CT avec compensation du mouvement par techniques de maximum de vraisemblance</i> ”, CEA, Orsay, France
Mar. 2016	“Motion-Compensated PET Image Reconstruction by Maximum-Likelihood”, Newton Project Workshop on Brazil/UK Collaboration: the Future of Molecular Imaging, Recife, Brazil
Nov. 2015	“Gated PET Reconstruction with Motion Compensation and Attenuation Correction using non-Gated CT”, Brain Institute, Hospital Israelita Albert Einstein, São Paulo, Brazil

6.5 Software Development: JRM

Joint Reconstruction and Motion estimation (JRM) is a Matlab toolbox for motion-compensated attenuation corrected PET that I developed for UCL and GE Healthcare. A “light” version is available at https://gitlab.com/abousse/jrm_lite.

7 Publications

Peer-Reviewed Journal Papers, in Review

- [S1] L. Brusafferri, **A. Bousse**, É. C. Émond, R. Brown, Y.-J. Tsai, D. Atkinson, S. Ourselin, C. Watson, B. F. Hutton, S. Arridge, and K. Thielemans, “Joint activity, attenuation and scatter estimation from multiple energy window data in non-TOF 3D PET,” *IEEE Transactions on Medical Imaging (in review)*, 2019.

Peer-Reviewed Journal Papers

- [J1] **A. Bousse**, M. Courdurier, É. C. Émond, K. Thielemans, B. F. Hutton, P. Irarrazaval, and D. Visvikis, “PET reconstruction with non-negativity constraints in projection space: Optimization through hypo-convergence,” *IEEE Transactions on Medical Imaging (preprint)*, 2019. DOI: [10.1109/TMI.2019.2920109](https://doi.org/10.1109/TMI.2019.2920109). [Online]. Available: <https://hal.archives-ouvertes.fr/hal-02144923>.
- [J2] A. Iborra, A. J. González, A. González-Montoro, **A. Bousse**, and D. Visvikis, “Ensemble of neural networks for 3D position estimation in monolithic PET detectors,” *Physics in Medicine & Biology*, vol. 64, no. 19, p. 195 010, 2019. DOI: [10.1088/1361-6560/ab3b86](https://doi.org/10.1088/1361-6560/ab3b86).
- [J3] Y.-J. Tsai, G. Schramm, S. Ahn, **A. Bousse**, S. Arridge, J. Nuyts, B. F. Hutton, C. W. Stearns, and K. Thielemans, “Benefits of using a spatially-variant penalty strength with anatomical priors in PET reconstruction,” *IEEE Transactions on Medical Imaging (preprint)*, 2019. DOI: [10.1109/TMI.2019.2913889](https://doi.org/10.1109/TMI.2019.2913889).
- [J4] Y.-J. Tsai, **A. Bousse**, M. J. Ehrhardt, C. W. Stearns, S. Ahn, B. H. Hutton, S. Arridge, and K. Thielemans, “Fast quasi-newton algorithms for penalized reconstruction in emission tomography and further improvements via preconditioning,” *IEEE Transactions on Medical Imaging*, vol. 37, no. 4, pp. 1000–1010, 2018. DOI: [10.1109/TMI.2017.2786865](https://doi.org/10.1109/TMI.2017.2786865). [Online]. Available: <https://doi.org/10.1109/TMI.2017.2786865>.
- [J5] **A. Bousse**, R. Manber, B. F. Holman, D. Atkinson, S. Arridge, S. Ourselin, B. F. Hutton, and K. Thielemans, “Evaluation of a direct motion estimation/correction method in respiratory-gated PET/MRI with motion-adjusted attenuation,” *Medical Physics*, vol. 44, no. 6, pp. 2379–2390, 2017. DOI: [10.1002/mp.12253](https://doi.org/10.1002/mp.12253). [Online]. Available: <https://doi.org/10.1002/mp.12253>.

- [J6] J. Jiao, **A. Bousse**, K. Thielemans, N. Burgos, P. Weston, P. Markiewicz, J. Schott, D. Atkinson, S. Arridge, B. F. Hutton, and S. Ourselin, "Direct parametric reconstruction with joint motion estimation/correction for dynamic brain PET data," *IEEE Transactions on Medical Imaging*, vol. 36, no. 1, pp. 203–213, 2017. DOI: [10.1109/TMI.2016.2594150](https://doi.org/10.1109/TMI.2016.2594150). [Online]. Available: <https://doi.org/10.1109/TMI.2016.2594150>.
- [J7] **A. Bousse**, O. Bertolli, D. Atkinson, S. Arridge, S. Ourselin, B. F. Hutton, and K. Thielemans, "Maximum-likelihood joint image reconstruction and motion estimation with misaligned attenuation in TOF-PET/CT," *Physics in Medicine & Biology*, vol. 61, no. 3, pp. L11–19, 2016. DOI: [10.1088/0031-9155/61/3/L11](https://doi.org/10.1088/0031-9155/61/3/L11). [Online]. Available: <https://doi.org/10.1088/0031-9155/61/3/L11>.
- [J8] **A. Bousse**, O. Bertolli, D. Atkinson, S. Arridge, S. Ourselin, B. F. Hutton, and K. Thielemans, "Maximum-likelihood joint image reconstruction/motion estimation in attenuation-corrected respiratory gated PET/CT using a single attenuation map," *IEEE Transactions on Medical Imaging*, vol. 35, no. 1, pp. 217–228, 2016. DOI: [10.1109/TMI.2015.2464156](https://doi.org/10.1109/TMI.2015.2464156). [Online]. Available: <https://doi.org/10.1109/TMI.2015.2464156>.
- [J9] B. A. Thomas, V. Cuplov, **A. Bousse**, A. Mendes, K. Thielemans, B. H. Hutton, and K. Erlandsson, "PETPVC: a toolbox for performing partial volume correction techniques in positron emission tomography," *Physics in Medicine & Biology*, vol. 61, no. 22, pp. 7975–7993, 2016. DOI: [10.1088/0031-9155/61/22/7975](https://doi.org/10.1088/0031-9155/61/22/7975). [Online]. Available: <https://discovery.ucl.ac.uk/id/eprint/1523346/>.
- [J10] D. Salvado, K. Erlandsson, **A. Bousse**, M. Occipinti, C. Fiorini, B. F. Hutton, *et al.*, "Collimator design for a brain SPECT/MRI insert," *IEEE Transactions on Nuclear Science*, vol. 62, no. 4, pp. 1716–1724, 2015. DOI: [10.1109/TNS.2015.2450017](https://doi.org/10.1109/TNS.2015.2450017). [Online]. Available: <https://doi.org/10.1109/TNS.2015.2450017>.
- [J11] J. Jiao, **A. Bousse**, K. Thielemans, P. Markiewicz, N. Burgos, D. Atkinson, S. Arridge, B. F. Hutton, and S. Ourselin, "Joint parametric reconstruction and motion correction framework for dynamic PET data," *Med. Image Comput. Comput. Assist. Interv. Conf. Rec.*, vol. 17, no. 1, pp. 114–121, 2014. DOI: [10.1007/978-3-319-10404-1_15](https://doi.org/10.1007/978-3-319-10404-1_15). [Online]. Available: https://doi.org/10.1007/978-3-319-10404-1_15.
- [J12] B. A. Thomas, K. Erlandsson, I. Drobnjak, S. Pedemonte, K. Vunckx, **A. Bousse**, A. Reilhac-Laborde, S. Ourselin, and B. F. Hutton, "Framework for the construction of a monte carlo simulated brain PET-MR image database," *Nuclear Instruments and Methods in Physics Research Section A*, vol. 734, pp. 162–165, 2014. DOI: [10.1016/j.nima.2013.08.063](https://doi.org/10.1016/j.nima.2013.08.063). [Online]. Available: <https://doi.org/10.1016/j.nima.2013.08.063>.
- [J13] B. F. Hutton, B. A. Thomas, K. Erlandsson, **A. Bousse**, A. Reilhac-Laborde, D. Kazantsev, S. Pedemonte, K. Vunckx, S. Arridge, and S. Ourselin, "What approach to brain partial volume correction is best for PET/MRI?" *Nuclear Instruments and Methods in Physics Research Section A*, vol. 702, pp. 29–33, 2013. DOI: [10.1016/j.nima.2012.07.059](https://doi.org/10.1016/j.nima.2012.07.059). [Online]. Available: <https://doi.org/10.1016/j.nima.2012.07.059>.
- [J14] **A. Bousse**, S. Pedemonte, B. A. Thomas, K. Erlandsson, S. Ourselin, S. Arridge, and B. F. Hutton, "Markov random field and gaussian mixture for segmented MRI-based partial volume correction in PET," *Physics in Medicine & Biology*, vol. 57, no. 20, pp. 6681–6705, 2012. DOI: [10.1088/0031-9155/57/20/6681](https://doi.org/10.1088/0031-9155/57/20/6681).
- [J15] D. Kazantsev, S. Arridge, S. Pedemonte, **A. Bousse**, K. Erlandsson, B. F. Hutton, and S. Ourselin, "An anatomically driven anisotropic diffusion filtering method for 3D SPECT reconstruction," *Physics in Medicine & Biology*, vol. 57, no. 12, p. 3793, 2012. DOI: [10.1088/0031-9155/57/12/3793](https://doi.org/10.1088/0031-9155/57/12/3793).

- [J16] S. Pedemonte, **A. Bousse**, B. F. Hutton, S. Arridge, and S. Ourselin, “4-D generative model for PET/MRI reconstruction,” *Med. Image Comput. Comput. Assist. Interv. Conf. Rec.*, vol. 14, no. 1, pp. 581–588, 2011. DOI: [10.1007/978-3-642-23623-5_73](https://doi.org/10.1007/978-3-642-23623-5_73). [Online]. Available: https://doi.org/10.1007/978-3-642-23623-5_73.
- [J17] **A. Bousse**, J. Zhou, G. Yang, J.-J. Bellanger, and C. Toumoulin, “Motion compensated tomography reconstruction of coronary arteries in rotational angiography,” *IEEE Transactions on Biomedical Engineering*, vol. 56, no. 4, pp. 1254–1257, 2009. DOI: [10.1109/TBME.2008.2005205](https://doi.org/10.1109/TBME.2008.2005205). [Online]. Available: <https://hal.archives-ouvertes.fr/inserm-00418315>.
- [J18] J. Zhou, J.-L. Coatrieux, **A. Bousse**, H. Shu, and L. Luo, “A bayesian MAP-EM algorithm for PET image reconstruction using wavelet transform,” *IEEE Transactions on Nuclear Science*, vol. 54, no. 5, pp. 1660–1669, 2007. DOI: [10.1109/TNS.2007.901200](https://doi.org/10.1109/TNS.2007.901200). [Online]. Available: <https://hal.archives-ouvertes.fr/inserm-00184255>.
- [J19] **A. Bousse**, C. Boldak, C. Toumoulin, G. Yang, S. Laguitton, and D. Boulmier, “Coronary extraction and characterization in multi-detector computed tomography,” *ITBM-RBM*, vol. 27, no. 5, pp. 217–226, 2006. DOI: [10.1016/j.rbmret.2007.01.001](https://doi.org/10.1016/j.rbmret.2007.01.001). [Online]. Available: <https://doi.org/10.1016/j.rbmret.2007.01.001>.

Peer-Reviewed Conference Papers (Oral Presentations)

- [O1] É. C. Émond, **A. Bousse**, A. M. Groves, B. F. Hutton, and K. Thielemans, “Joint reconstruction of activity image and motion estimation in dynamic PET from a single attenuation map,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2019.
- [O2] D. Giovagnoli, **A. Bousse**, A. I. Carreres, T. Merlin, N. Beaupere, J.-P. Cussonneau, C. Canot, S. Diglio, J. Masbou, E. Morteau, Y. Xing, Y. Zhu, D. Thers, and D. Visvikis, “A novel image reconstruction approach for 3 gamma imaging,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2019.
- [O3] **A. Bousse** and M. Courdurier, “Hypo-convergence for PET reconstruction with non-negativity constraints in projection space (abstract only),” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2018.
- [O4] L. Brusafferri, **A. Bousse**, Y.-J. Tsai, D. Atkinson, S. Ourselin, B. F. Hutton, S. Arridge, and K. Thielemans, “Maximum-likelihood estimation of emission and attenuation images in 3D PET from multiple energy window measurements,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2018. DOI: [10.1109/NSSMIC.2018.8824557](https://doi.org/10.1109/NSSMIC.2018.8824557).
- [O5] Y.-J. Tsai, **A. Bousse**, S. Ahn, C. W. Stearns, S. Arridge, B. F. Hutton, and K. Thielemans, “Algorithms for solving misalignment issues in penalized PET/CT reconstruction using anatomical priors,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2018. DOI: [10.1109/NSSMIC.2018.8824558](https://doi.org/10.1109/NSSMIC.2018.8824558).
- [O6] L. Brusafferri, **A. Bousse**, N. Efthimiou, É. C. Émond, D. Atkinson, S. Ourselin, B. F. Hutton, S. Arridge, and K. Thielemans, “Potential benefits of incorporating energy information when estimating attenuation from PET data,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2017. DOI: [10.1109/NSSMIC.2017.8532765](https://doi.org/10.1109/NSSMIC.2017.8532765).
- [O7] **A. Bousse**, A. Sidlesky, N. Roth, A. Rashidnasab, K. Thielemans, and B. F. Hutton, “Joint activity/attenuation reconstruction in SPECT using photopeak and scatter sinograms,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2016. DOI: [10.1109/NSSMIC.2016.8069448](https://doi.org/10.1109/NSSMIC.2016.8069448).
- [O8] **A. Bousse**, O. Bertolli, D. Atkinson, S. Arridge, S. Ourselin, B. H. Hutton, and K. Thielemans, “Direct joint motion estimation/image reconstruction in attenuation-corrected gated PET/CT without gated CT,” in *Fully 3D*, 2015.

- [O9] **A. Bousse**, J. Jiao, K. Thielemans, D. Atkinson, S. Arridge, S. Ourselin, and B. F. Hutton, “Joint direct motion estimation/kinetic images reconstruction from gated PET data,” in *Comp. Methods for Mol. Imag. MICCAI Workshop*, ser. Lect. Notes in Comput. Vision and Bio-Mech. Vol. 22, Springer International Publishing, 2015, pp. 53–62. DOI: [10.1007/978-3-319-18431-9_6](https://doi.org/10.1007/978-3-319-18431-9_6).
- [O10] K. Vunckx, S. Arridge, **A. Bousse**, D. Kazantsev, S. Pedemonte, S. Ourselin, and B. F. Hutton, “Unifying global and local statistical measures for anatomy-guided emission tomography reconstruction,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2012, pp. 2161–2165. DOI: [10.1109/NSSMIC.2012.6551494](https://doi.org/10.1109/NSSMIC.2012.6551494).
- [O11] D. Kazantsev, S. Arridge, S. Pedemonte, S. Ourselin, **A. Bousse**, and B. F. Hutton, “Robust anisotropic diffusion prior with anatomical regularization for 3D SPECT reconstruction,” in *Fully 3D*, 2011.

Peer-Reviewed Conference Papers (Poster Presentations)

- [P1] É. C. Émond, **A. Bousse**, L. Brusaferrì, A. M. Groves, B. F. Hutton, and K. Thielemans, “Mass preservation for respiratory motion registration in both PET and CT,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2019.
- [P2] A. Iborra, A. J. González, A. González-Montoro, **A. Bousse**, and D. Visvikis, “Ensemble of neural networks for 3d position estimation in monolithic PET detectors,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2019.
- [P3] V. S. S. Kandarpa, D. Benoit, **A. Bousse**, and D. Visvikis, “Direct image reconstruction using generative deep learning networks,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2019.
- [P4] **A. Bousse**, B. F. Hutton, and K. Thielemans, “Fast gated PET direct motion estimation using ordered subsets,” in *Fully 3D*, 2017. DOI: [10.12059/Fully3D.2017-11-3202020](https://doi.org/10.12059/Fully3D.2017-11-3202020). [Online]. Available: <http://onlinelibrary.fully3d.org/papers/2017/Fully3D.2017-11-3202020.pdf>.
- [P5] Y.-J. Tsai, G. Schramm, J. Nuyts, S. Ahn, C. W. Stearns, **A. Bousse**, S. Arridge, and K. Thielemans, “Spatially-variant strength for anatomical priors in PET reconstruction,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2017. DOI: [10.1109/NSSMIC.2017.8532925](https://doi.org/10.1109/NSSMIC.2017.8532925).
- [P6] A. Rashidnasab, **A. Bousse**, B. F. Holman, B. F. Hutton, and K. Thielemans, “Joint reconstruction of activity and attenuation in dynamic PET,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2016. DOI: [10.1109/NSSMIC.2016.8069456](https://doi.org/10.1109/NSSMIC.2016.8069456).
- [P7] Y.-J. Tsai, **A. Bousse**, C. W. Stearns, S. Ahn, B. F. Hutton, S. Arridge, and K. Thielemans, “Performance improvement and validation of a new MAP reconstruction algorithm,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2016. DOI: [10.1109/NSSMIC.2016.8069458](https://doi.org/10.1109/NSSMIC.2016.8069458).
- [P8] Y.-J. Tsai, **A. Bousse**, M. J. Ehrhardt, B. F. Hutton, S. Arridge, and K. Thielemans, “Performance evaluation of MAP algorithms with different penalties, object geometries and noise levels,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2015. DOI: [10.1109/NSSMIC.2015.7582101](https://doi.org/10.1109/NSSMIC.2015.7582101).
- [P9] **A. Bousse**, J. Jiao, L. Pizarro, K. Thielemans, D. Atkinson, S. Ourselin, S. Arridge, and B. F. Hutton, “An algorithm for direct 4-D PET image reconstruction/non-rigid motion estimation with limited MRI prior information,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2014, pp. 1–3. DOI: [10.1109/NSSMIC.2014.7430828](https://doi.org/10.1109/NSSMIC.2014.7430828).
- [P10] **A. Bousse**, K. Erlandsson, N. Fuin, D. Salvado, and B. F. Hutton, “Variance prediction in SPECT reconstruction based on the fisher information using a novel angular blurring algorithm for computation of the system matrix,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2013, pp. 1–6. DOI: [10.1109/NSSMIC.2013.6829221](https://doi.org/10.1109/NSSMIC.2013.6829221).

- [P11] **A. Bousse**, K. Erlandsson, S. Pedemonte, S. Ourselin, S. Arridge, and B. F. Hutton, “Angular rebinning for geometry independent SPECT reconstruction,” in *Fully 3D*, 2013.
- [P12] K. Erlandsson, D. Salvado, **A. Bousse**, and B. F. Hutton, “Design optimization and evaluation of a human brain SPECT-MRI insert based on high-resolution detectors and slit-slat collimators,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2013, pp. 1–4. DOI: [10.1109/NSSMIC.2013.6829144](https://doi.org/10.1109/NSSMIC.2013.6829144).
- [P13] **A. Bousse**, C. Panagiotou, K. Erlandsson, S. Ourselin, S. Arridge, and B. F. Hutton, “Monotonic algorithm for joint entropy-based anatomical priors in parametric PET image reconstruction,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2012, pp. 3918–3924. DOI: [10.1109/NSSMIC.2012.6551899](https://doi.org/10.1109/NSSMIC.2012.6551899).
- [P14] B. A. Thomas, K. Erlandsson, A. Reilhac, **A. Bousse**, D. Kazantsev, S. Pedemonte, K. Vunckx, S. Arridge, S. Ourselin, and B. F. Hutton, “A comparison of the options for brain partial volume correction using PET/MRI,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2012, pp. 2902–2906. DOI: [10.1109/NSSMIC.2012.6551662](https://doi.org/10.1109/NSSMIC.2012.6551662).
- [P15] D. Kazantsev, **A. Bousse**, S. Pedemonte, S. Arridge, B. F. Hutton, and S. Ourselin, “Edge preserving Bowsher prior with nonlocal weighting for 3D SPECT reconstruction,” in *IEEE Int. Symp. on Bio-med. Imag.: From Nano to Macro*, 2011, pp. 1158–1161. DOI: [10.1109/ISBI.2011.5872607](https://doi.org/10.1109/ISBI.2011.5872607).
- [P16] S. Pedemonte, **A. Bousse**, B. F. Hutton, S. Arridge, and S. Ourselin, “Probabilistic graphical model of SPECT/MRI,” in *Machine Learning in Med. Imag.*, 2011, pp. 167–174. DOI: [10.1007/978-3-642-24319-6_21](https://doi.org/10.1007/978-3-642-24319-6_21).
- [P17] **A. Bousse**, S. Pedemonte, D. Kazantsev, S. Ourselin, S. Arridge, and B. F. Hutton, “Weighted MRI-based Bowsher priors for SPECT brain image reconstruction,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2010, pp. 3519–3522. DOI: [10.1109/NSSMIC.2010.5874462](https://doi.org/10.1109/NSSMIC.2010.5874462).
- [P18] D. Kazantsev, S. Pedemonte, **A. Bousse**, C. Panagiotou, S. Arridge, B. F. Hutton, and S. Ourselin, “ET bayesian reconstruction using automatic bandwidth selection for joint entropy optimization,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2010, pp. 3301–3307. DOI: [10.1109/NSSMIC.2010.5874415](https://doi.org/10.1109/NSSMIC.2010.5874415).
- [P19] S. Pedemonte, **A. Bousse**, K. Erlandsson, M. Modat, S. Arridge, B. F. Hutton, and S. Ourselin, “GPU accelerated rotation-based emission tomography reconstruction,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2010, pp. 2657–2661. DOI: [10.1109/NSSMIC.2010.5874272](https://doi.org/10.1109/NSSMIC.2010.5874272).
- [P20] S. Pedemonte, M. J. Cardoso, **A. Bousse**, C. Panagiotou, D. Kazantsev, S. Arridge, B. F. Hutton, and S. Ourselin, “Class conditional entropic prior for MRI enhanced SPECT reconstruction,” in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2010, pp. 3292–3300. DOI: [10.1109/NSSMIC.2010.5874414](https://doi.org/10.1109/NSSMIC.2010.5874414).
- [P21] J. Zhou, **A. Bousse**, G. Yang, J.-J. Bellanger, L. Luo, C. Toumoulin, and J.-L. Coatrieux, “A blob-based tomographic reconstruction of 3D coronary trees from rotational x-ray angiography,” in *Medical Imaging 2008: Physics of Medical Imaging*, International Society for Optics and Photonics, vol. 6913, 2008, 69132N. DOI: [10.1117/12.769478](https://doi.org/10.1117/12.769478). [Online]. Available: <https://hal.archives-ouvertes.fr/inserm-00335244>.
- [P22] G. Yang, **A. Bousse**, C. Toumoulin, and H. Shu, “Simulation environment for the evaluation of 3D coronary tree reconstruction algorithms in rotational angiography,” in *IEEE Eng. Med. Biol. Soc. Conf. Rec.*, 2007, pp. 4484–4487. DOI: [10.1109/IEMBS.2007.4353335](https://doi.org/10.1109/IEMBS.2007.4353335).
- [P23] S. Laguitton, C. Boldak, **A. Bousse**, G. Yang, and C. Toumoulin, “Temporal tracking of coronaries in MSCTA by means of 3D geometrical moments,” in *IEEE Eng. Med. Biol. Soc. Conf. Rec.*, 2006, pp. 924–927. DOI: [10.1109/IEMBS.2006.260670](https://doi.org/10.1109/IEMBS.2006.260670).
- [P24] G. Yang, **A. Bousse**, C. Toumoulin, and H. Shu, “A multiscale tracking algorithm for the coronary extraction in MSCT angiography,” in *IEEE Eng. Med. Biol. Soc. Conf. Rec.*, 2006, pp. 3066–3069. DOI: [10.1109/IEMBS.2006.260712](https://doi.org/10.1109/IEMBS.2006.260712).

- [P25] J. Brieva, E. Gonzalez, F. Gonzalez, **A. Bousse**, and J.-J. Bellanger, “A level set method for vessel segmentation in coronary angiography,” in *IEEE Eng. Med. Biol. Soc. Conf. Rec.*, vol. 6, 2004, pp. 6348–6351. DOI: [10.1109/IEMBS.2005.1615949](https://doi.org/10.1109/IEMBS.2005.1615949).

Conference Abstracts

- [A1] É. C. Émond, **A. Bousse**, A. M. Groves, B. F. Hutton, and K. Thielemans, “Dependence of error propagation due to an incorrect attenuation map on PET time-of-flight resolution,” in *Eur. Assoc. Nucl. Med.*, 2019.
- [A2] K. Erlandsson, D. Salvado, **A. Bousse**, and B. F. Hutton, “Evaluation of a partial ring design for the INSERT SPECT/MRI system,” in *EJNMMI physics*, vol. 2, Springer, 2015, A47. DOI: [10.1186/2197-7364-2-S1-A47](https://doi.org/10.1186/2197-7364-2-S1-A47).
- [A3] **A. Bousse**, J. Jiao, K. Erlandsson, L. Pizarro, K. Thielemans, D. Atkinson, S. Ourselin, S. Arridge, and B. F. Hutton, “4-D PET joint image reconstruction/non-rigid motion estimation with limited MRI prior information,” in *EJNMMI physics*, vol. 1, Springer, 2014, A27. DOI: [10.1186/2197-7364-1-S1-A27](https://doi.org/10.1186/2197-7364-1-S1-A27).
- [A4] D. Salvado, K. Erlandsson, **A. Bousse**, M. Occhipinti, C. Fiorini, B. F. Hutton, *et al.*, “Collimator design for a clinical brain SPECT/MRI insert,” in *EJNMMI physics*, vol. 1, Springer, 2014, A21. DOI: [10.1186/2197-7364-1-S1-A21](https://doi.org/10.1186/2197-7364-1-S1-A21).
- [A5] S. Cade, **A. Bousse**, S. Arridge, M. Evans, and B. F. Hutton, “Estimating an attenuation map from measured scatter for 180o cardiac SPECT,” in *Soc. of Nuclear. Med. Abstracts*, vol. 51, 2010, p. 1357.
- [A6] **A. Bousse**, J. Zhou, G. Yang, J.-J. Bellanger, and C. Toumoulin, “Motion estimation in x-ray rotational angiography using a 3-D deformable coronary tree model,” in *Comp. in Cardio.*, 2008, pp. 529–532. DOI: [10.1109/CIC.2008.4749095](https://doi.org/10.1109/CIC.2008.4749095).