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:	Researcher (*chargé de recherche*)
	Université de Bretagne Occidentale (UBO), Brest, France
	Section 61—*génie informatique, automatique et traitement du signal*
Research Institute:	*Laboratoire de Traitement de l'Information Médicale* (LaTIM)
	INSERM, UMR 1101, Brest, France
Email Address:	alexandre.bousse@univ-brest.fr

2 Qualifications

3 Academic Career

3.1 Professional Experience

2018–2021	**Researcher** (*chargé de recherche*), LaTIM, INSERM, UMR 1101, UBO, Brest, France
2018–2021	**Associate Professor**, LaTIM, INSERM, UMR 1101, UBO, Brest, France
2009–2018	**Post-doctorate**, Insitute of Nuclear Medicine, University College London (UCL), London, UK
2005–2008	**PhD Candidate**, *Laboratoire du Traitement du Signal et de l'Image* (LTSI), INSERM, UMR 1099, *Université de Rennes 1*, Rennes, France

3.2 Education

2019	*Habilitation à diriger des recherches* (habilitation thesis), LaTIM, INSERM, UMR 1101, UBO, Brest, France
	Title: *"Contributions à la reconstruction tomographique compensée en mouvement"*
	Viva: 07/10/2019

	Jury: · Dimitris Visvikis, LaTIM, INSERM, UMR 1101, UBO, Brest, France · Françoise Pène, UBO, Brest, France · Claude Comtat, CEA, Orsay, France · Andrew Reader, King's College London, London, UK · Michel Defrise, *Université Libre de Bruxelles*, Brussels, Belgium

2005–2008	**PhD**, Signal Processing, LTSI, UMR 1099, *Université de Rennes 1*, 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:
	· Directors:
	  – J.-L. Coatrieux, LTSI, INSERM, UMR 1099, *Université de Rennes 1*, Rennes, France
	  – H. Shu, LIST, SEU, Nanjing, China
	  – C. Toumoulin, LTSI, INSERM, UMR 1099, *Université de Rennes 1*, Rennes, France
	· President: J. Demongeot, *Université Joseph Fourier*, Grenoble, France
	· Referees:
	  – J. Yang, Nanjing University of Science and Technology, Nanjing, China
	  – C. Roux, *Télécom Bretagne*, Brest, France
	· Reviewers:
	  – L. Luo, LIST, SEU, Nanjing, China
	  – D. Xia, Nanjing University of Science and Technology, Nanjing, China

2004–2005	**Master of Science (DEA), Statistics**, *Université de Rennes 1*, Rennes, France
2003–2004	**Master of Science (DESS), Statistics**, *Université de Rennes 1*, Rennes, France
1998–2003	**Bachelor of Science, Mathematics**, *Université de Rennes 1*, Rennes, France

4 Teaching Activities and PhD Supervision

4.1 Teaching

2018–present	**Image Reconstruction** M2 *Master Signaux Images en Biologie et Médecine* (SIBM), UBO, Brest, France: 6-hour lecture per year M2 *physique et instrumentation*, UBO, Brest, France: 12 hours lecture & 6 hours lab per year First of year Engineering School at IMT *Atlantique*, Brest, France: 5 hours lecture per year Mathematics and algorithms for image reconstruction
2018–2021	**Coordinator** of M2 SIBM at UBO
2018–2021	**Image Segmentation** M1 biologie-santé 10 hours lecture per year
2018–2021	**Pix**

	Medical and Dental School, UBO, Brest, France 100 hours lab per year
2004–2007	**Probability & Statistics** (contractual teaching during PhD) First of year Engineering School, ENSAI, Rennes, France Math and Economy Section Teaching topics: measure theory, random variables, parametric statistics, statistical hypothesis testing, linear regression 160 hours lab in total

4.2 PhD Supervision and Co-supervision

2018–present	Sai Sundar Kandarpa, UBO (100%) "PET Image Reconstruction using Deep-Learning" Director: Alexandre Bousse Publications: [J3], [P3], [P8] Status: ongoing
2018–present	Suxer Alfonso Garcia, UBO (100%) "Dual Energy CBCT Reconstruction for Dose Computation in Radiotherapy" Director: Alexandre Bousse Publications: [P1], [P2], [O1] Status: ongoing
2017–present	Baptiste Laurent, UBO (50%) *"Estimation des diffusés en TEP par apprentissage profond"* Director: Nicolas Boussion; co-supervisor: Thibaut Merlin (50%) Status: ongoing
2017–2020	Debora Giovagnoli, IMT *Atlantique* (50%) "3-γ Image Reconstruction using LXe Compton Camera XEMIS2" Director: Dimitris Visvikis; co-supervisor: Thibaut Merlin (50%) Publications: [J2], [O4] Status: completed
2016–2020	Ludovica Brusaferri, UCL (50%) "Improving Quantification in non-TOF 3D PET/MR by Incorporating Photon Energy Information" Director: Kris Thielemans (50%) Publications: [J6], [O5], [O7] Status: completed
2016–2020	Élise Émond, UCL (50%) "Improving Quantification in Lung PET/CT for the Evaluation of Disease Progression and Treatment Effectiveness" Director: Kris Thielemans (50%) Publications: [J8], [O3], [P6], [A1] Status: completed
2014–2018	Yu-Jung Tsai, UCL (50%) "Penalised Image Reconstruction Algorithms for Efficient and Consistent Quantification in Emission Tomography" Director: Kris Thielemans (50%) Publications: [J9], [O6], [J11], [P10], [P12] Status: completed
2010–2015	Sarah Cade, UCL (25%)

"Attenuation Correction of Myocardial Perfusion Scintigraphy Images without Transmission Scanning"
Director: Brian F. Hutton; co-supervisor: Kjell Erlandsson (50%)
Publications: [A5]
Status: completed

5 Grants and External Funding

5.1 Funding at Current Position (since 01/09/2018)

2020	**ANR – ANR-20-CE45-0020** (France) Amount awarded: €496,800 **Role: PI** Project Title: "MultiRecon: Machine-Learning for Multimodal Medical Image Reconstruction"
10/09/2019–present	**France Life Imaging WP4** (France) Amount awarded: €24,000 **Role: PI** Project Title: "Dual-Tracer in Dynamic PET" (complement funding to the *Émergence* project)
18/02/2019–present	**AO *Émergence Cancéropôle Grand Ouest*** (France) Amount awarded: €15,000 **Role: PI** Project Title: "Dual-Tracer in Dynamic PET"

5.2 Funding during Postdoc at UCL (2009–2018)

2016–2018	**GE Healthcare** (USA) Amount awarded: $150,000 **Role: co-PI** PI: Kris Thielemans Project Title: "Motion-Compensated PET/CT"
2013–2015	**FP7 – HEALTH Program 305311** (EU) Amount awarded: €575,622 (€5,981,463 in total for all the EU partners) **Role: Research Fellow** PI: Brian F. Hutton Project Title: "Development of an integrated SPECT/MRI system"
2013–2016	**EPSRC – EP/K005278/1** (UK) Amount awarded: £1,274,298 **Role: WP leader** PI: Brian F. Hutton Project Title: "Exploiting the Unique Quantitative Capabilities Offered by Simultaneous PET/MRI"
2009–2012	**EPSRC – EP/G026483/1** (UK) Amount awarded: £767,088 **Role: Research Fellow** PI: Brian F. Hutton

Project Title: "Optimising Reconstruction to Accommodate Complex System Models for Emission Tomography"

6 Academic Service and Scientific Diffusion

6.1 Meetings Organisation

2021	**Student Paper Awards Committee**, International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine
2018	**Session Chairman**, IEEE Nuclear Science Symposium and Medical Imaging Conference

6.2 International Partnerships

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

- Attenuation-map estimation from scatter in SPECT: Spectrum Dynamics, Caesarea, Israel
- Motion-Compensated PET/CT: GE Healthcare, Waukesha, WI, USA
- SPECT/MRI INSERT project: Polytechnic University of Milan (Italy), CROmed (Budapest, Hungary), Nuclear-Fields (Vortum-Mullem, Netherlands) and MRI Tools (Berlin, Germany)
- Xpulse project: ALPHaNOV, Talence, France
- AI for Spectral CT imaging, SIEMENS
- Department of Mathematics, *Pontificia Universidad Católica de Chile*, Santiago, Chile

6.3 Scientific Evaluation

Journal Editor

- Frontiers in Medicine

Journal and Conference Peer Review

- IEEE Transactions on Medical Imaging
- IEEE Transactions on Biomedical Engineering
- IEEE Transactions on Radiation and Plasma Medical Sciences
- IEEE Medical Imaging Conference 2014, 2015, 2016 and 2018
- MICCAI 2020
- Physics in Medicine and Biology
- Neuroimage
- PLOS one
- Philosophical Transactions A
- IEEE Nuclear Science Symposium and Medical Imaging Conference 2019, 2021

More details can be found on my Publons profile.

Grant Peer Review

- 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	*"Reconstruction d'image en tomographie à émission de positons par maximum de vraisemblance avec compensation du mouvement respiratoire ",* *Laboratoire de Mathématiques de Bretagne Atlantique*, 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", *Pontificia Universidad Católica de Chile*, 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	*"Reconstruction en PET-CT avec compensation du mouvement par techniques de maximum de vraisemblance",* 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

Name	Joint Reconstruction and Motion estimation (JRM)
Language	Matlab/C++
Description	Joint Reconstruction and Motion estimation (JRM) is a toolbox for motion-compensated attenuation-corrected PET reconstruction that I developed for UCL and GE Healthcare. While the full version cannot be distributed, a "light" version is available at the address below.
Source code	https://gitlab.com/abousse/jrm_lite

7   Publications

Peer-Reviewed Journal Papers

[J1]   L. Brusaferri, É. C. Émond, **A. Bousse**, R. Twyman, A. C. Whitehead, D. Atkinson, S. Ourselin, B. F. Hutton, S. Arridge, and K. Thielemans, "Detection efficiency modelling and joint activity and at-

tenuation reconstruction in non-TOF 3D PET from multiple-energy window data," *IEEE Transactions on Radiation and Plasma Medical Sciences*, 2021. DOI: 10.1109/TRPMS.2021.3064239.

[J2] D. Giovagnoli, **A. Bousse**, N. Beaupere, C. Canot, J.-P. Cussonneau, S. Diglio, A. Iborra Carreres, J. Masbou, T. Merlin, E. Morteau, Y. Xing, Y. Zhu, D. Thers, and D. Visvikis, "A pseudo-TOF image reconstruction approach for three-gamma small animal imaging," *IEEE Transactions on Radiation and Plasma Medical Sciences*, 2021. DOI: 10.1109/TRPMS.2020.3046409.

[J3] V. S. S. Kandarpa, **A. Bousse**, D. Benoit, and D. Visvikis, "DUG-RECON: A framework for direct image reconstruction using convolutional generative networks," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 5, no. 1, pp. 44–53, 2021. DOI: 10.1109/TRPMS.2020.3033172. [Online]. Available: https://arxiv.org/abs/2012.02000.

[J4] Y.-J. Tsai, **A. Bousse**, S. Arridge, C. W. Stearns, B. F. Hutton, and K. Thielemans, "Penalized PET/CT reconstruction algorithms with automatic realignment for anatomical priors," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 5, no. 3, pp. 362–372, 2021. DOI: 10.1109/TRPMS.2020.3025540. [Online]. Available: https://arxiv.org/abs/1911.08012.

[J5] **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*, vol. 39, no. 1, pp. 75–86, 2020. DOI: 10.1109/TMI.2019.2920109. [Online]. Available: https://hal.archives-ouvertes.fr/hal-02144923.

[J6] L. Brusaferri, **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: A preliminary study," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 4, no. 4, pp. 410–421, 2020. DOI: 10.1109/TRPMS.2020.2978449. [Online]. Available: https://ieeexplore.ieee.org/document/9024002.

[J7] É. C. Émond, **A. Bousse**, L. Brusaferri, B. F. Hutton, and K. Thielemans, "Improved PET/CT respiratory motion compensation by incorporating changes in lung density," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 4, no. 5, pp. 594–602, 2020. DOI: 10.1109/TRPMS.2020.3001094. [Online]. Available: https://ieeexplore.ieee.org/document/9112356.

[J8] É. C. Émond, **A. Bousse**, J. P. Maria Machado, A. M. Groves, B. F. Hutton, and K. Thielemans, "Effect of attenuation mismatches in time of flight PET reconstruction," *Physics in Medicine & Biology*, vol. 65, no. 8, p. 085 009, 2020. DOI: 10.1088/1361-6560/ab7a6f. [Online]. Available: https://iopscience.iop.org/article/10.1088/1361-6560/ab7a6f.

[J9] 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*, vol. 39, no. 1, pp. 11–22, 2020. DOI: 10.1109/TMI.2019.2913889.

[J10] 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.

[J11] 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. [Online]. Available: https://doi.org/10.1109/TMI.2017.2786865.

[J12] **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. [Online]. Available: https://doi.org/10.1002/mp.12253.

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[J13] 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. [Online]. Available: https://doi.org/10.1109/TMI.2016.2594150.

[J14] **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. [Online]. Available: https://doi.org/10.1088/0031-9155/61/3/L11.

[J15] **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. [Online]. Available: https://doi.org/10.1109/TMI.2015.2464156.

[J16] 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. [Online]. Available: https://discovery.ucl.ac.uk/id/eprint/1523346.

[J17] 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. [Online]. Available: https://doi.org/10.1109/TNS.2015.2450017.

[J18] 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," *Lecture Notes in Computer Science*, vol. 17, no. 1, pp. 114–121, 2014. DOI: 10.1007/978-3-319-10404-1_15.

[J19] 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.

[J20] 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. [Online]. Available: https://doi.org/10.1016/j.nima.2012.07.059.

[J21] **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.

[J22] 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.

[J23] S. Pedemonte, **A. Bousse**, B. F. Hutton, S. Arridge, and S. Ourselin, "4-D generative model for PET/MRI reconstruction," *Lecture Notes in Computer Science*, vol. 14, no. 1, pp. 581–588, 2011. DOI: 10.1007/978-3-642-23623-5_73.

[J24] **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. [Online]. Available: https://hal.archives-ouvertes.fr/inserm-00418315.

[J25] 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. [Online]. Available: https://hal.archives-ouvertes.fr/inserm-00184255.

[J26] **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.

Peer-Reviewed Conference Papers (Oral Presentations)

[O1] S. L. Alfonso Garcia, **A. Bousse**, and D. Visvikis, "A coupled image-motion dictionary learning algorithm for motion estimation-compensation in cone-beam computed tomography," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2020.

[O2] B. Laurent, T. Merlin, **A. Bousse**, and D. Visvikis, "Deep learning based scatter correction for PET imaging," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2020.

[O3] E. C. Emond, **A. Bousse**, M. Machado, J. Porter, K. Erlandsson, A. M. Groves, B. F. Hutton, and K. Thielemans, "Respiratory motion correction in dynamic PET with a single attenuation map," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, IEEE, 2019, pp. 1–3.

[O4] 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.

[O5] L. Brusaferri, **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.

[O6] 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.

[O7] L. Brusaferri, **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.

[O8] **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.

[O9] **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 *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2015.

[O10] **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.

[O11] 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.

[O12] 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 *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2011.

Peer-Reviewed Conference Papers (Poster Presentations)

[P1] S. L. Alfonso Garcia, A. Perelli, **A. Bousse**, and D. Visvikis, "Dual-energy CT reconstruction with convolutional analysis operator learning," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2021.

[P2] S. L. Alfonso Garcia, A. Perelli, **A. Bousse**, and D. Visvikis, "Sparse-view joint reconstruction and material decomposition for dual-energy cone-beam computed tomography," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2021, pp. 389–394. [Online]. Available: https://arxiv.org/abs/2110.04143.

[P3] V. S. S. Kandarpa, A. Perelli, **A. Bousse**, and D. Visvikis, "Deep learning based direct sparse-view CT image reconstruction with concatenated U-Net," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2021.

[P4] L. Brusaferri, E. C. Émond, **A. Bousse**, R. Twyman, D. Atkinson, B. F. Hutton, S. Arridge, and K. Thielemans, "Normalisation factor estimation in non-TOF 3D PET from multiple-energy window data," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2020.

[P5] B. Le Crom, **A. Bousse**, M. Chérel, N. Costes, S. Gouard, S. Marionneau-Lambot, T. Merlin, D. Visvikis, S. Stute, and T. Carlier, "A single dual-tracer PET imaging acquisition to provide information on tumor heterogeneities," in *IEEE Nucl. Sci. Symp. Med. Imag. Conf. Rec.*, 2020.

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