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
Position:	Full Researcher (*chargé de recherche*)
Laboratory:	*Laboratoire de Traitement de l'Information Médicale* (LaTIM) INSERM, UMR 1101, Brest, France
Email Address:	alexandre.bousse@univ-brest.fr
Homepage:	https://abousse.github.io/

2 Academic Career

2.1 Professional Experience

2021–present	**Full Researcher** (*chargé de recherche*), LaTIM, INSERM, UMR 1101, *Université de Bretagne Occidentale* (UBO), Brest, France
2018–2021	**Associate Professor**, LaTIM, INSERM, UMR 1101, UBO, Brest, France
2009–2018	**Post-doctorate**, Insitute of Nuclear Medicine (INM), 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

2.2 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

3 Teaching Activities and Research Supervision

3.1 Teaching

2025–present	**École d'Ingénieur Statistique Data Science et Big Data (ENSAI)** (last year), Bruz, France Machine and deep learning 9-hour lecture per year.
2018–present	**Institut Mines-Télécom (IMT) Atlantique** (2nd year), Brest, France Advanced Medical Image Reconstruction 5-hour lecture per year & 6-hour lab per year Mathematics and algorithms for image reconstruction Machine and deep learning.
2018–2021	**M2 *Master Signaux Images en Biologie et Médecine* (SIBM), UBO**, Brest, France Introduction to Image Reconstruction 6-hour lecture per year (ended in 2021)

	France: 12-hour lecture & 6-hour lab per year
2018–2022	**M2 *physique et instrumentation***, UBO, Brest Introduction to Image Reconstruction 12-hour lecture & 6-hour lab per year. (ended in 2022)
2018–2021	**Coordinator** of M2 SIBM at UBO
2018–2021	**M1 biologie-santé, UBO**, Brest, France Image Segmentation 6-hours lecture per year.
2018–2021	**Medical and Dental School**, UBO, Brest, France Pix 100 hours lab per year.
2004–2007	**ENSAI** (first year), Bruz, France Probability & Statistics (contractual teaching during PhD) Teaching topics: measure theory, random variables, parametric statistics, statistical hypothesis testing, linear regression 64-hour science lab in total.

3.2 PhD Supervision and Co-supervision

2024–present	**Clémentine Phung-Ngoc**—UBO **Title**: "Motion-corrected Low-dose PET/CT with Unsupervised Learning" **Director**: Alexandre Bousse (50%) **Co-director**: Olivier Saut (25%), Hong-Phuong Dang **Publications**: [J5], [C3] **Status**: ongoing
2024–present	**Antoine De Paepe**—UBO **Title**: "Motion-compensated CT Reconstruction with Unsupervised Learning" **Director**: Alexandre Bousse (100%) **Publications**: [J1], [C2] **Status**: ongoing
2023–present	**Thore Dassow**—UBO **Title**: "Scored-Based Diffusion Models for Material Decomposition in PCCT" **Director**: Alexandre Bousse (100%) **Publications**: [C1] (best Fully3D 2025 paper award) **Status**: ongoing
2022–present	**Corentin Vazia**—*Université Bretagne Sud* (UBS) **Title**: "Scored-Based Diffusion Models in Spectral CT" **Director**: Jacques Froment (50%) **Co-director**: Alexandre Bousse (50%) **Publications**: [J7], [C9], [C10] **Status**: ongoing
2021–present	**Juan José Molina**—Pontificia Universidad Católica de Chile (PUC) **Title**: "Deep Learning Techniques for T_2^* Image Reconstruction" **Director**: Matias Courdurier (50%) **Co-supervisor**: Alexandre Bousse (50%) **Publications**: [J13] **Status**: ongoing

2021–present	**Youness Mellak**—UBO **Title**: "Deep Learning Techniques for 3-gamma PET Imaging" **Director**: Dimitris Visvikis (25%) **Co-director**: Alexandre Bousse (75%) **Publications**: [J3], [J4], [C6]–[C8], [C16] **Status**: ongoing
2021–present	**Valentin Gautier**—Institut National des Sciences Appliquées (INSA) Lyon **Title**: "*Reconstruction bimodale d'images TEP/IRM assisstée par intelligence artificielle*" **Director**: Bruno Sixou (50%) **Co-supervisor**: Alexandre Bousse (25%), Voichita Maxim (25%) **Publications**: [J12], [C5], [C12] **Status**: completed
2021–2024	**Noel Pinton**—UBO **Title**: "Synergistic PET/CT Reconstruction using Deep Learning" **Director**: Alexandre Bousse (100%) **Publications**: [J6], [C13], [C14] **Status**: completed
2021–2024	**Zhihan Wang**—UBO **Title**: "Spectral computed tomographic image reconstruction using deep learning" **Director**: Alexandre Bousse (75%) **Co-director**: Frank Vermet (25%) **Publications**: [C4], [J14], [C17] **Status**: completed
2017–2022	**Baptiste Laurent**—UBO **Title**: "*Estimation des diffusés en TEP par apprentissage profond*" **Director**: Nicolas Boussion **Co-director**: Alexandre Bousse (100%) **Publications**: [J2], [J15], [C23] **Status**: completed
2018–2022	**Sai Sundar Kandarpa**—UBO **Title**: "Tomographic Image Reconstruction with Direct Neural Network Approaches" **Director**: Alexandre Bousse (100%) **Publications**: [J10], [J11], [C15], [J16], [J21], [C20], [C29] **Status**: completed
2018–2022	**Suxer Alfonso Garcia**—UBO **Title**: "Multi-channel Computed Tomographic Image Reconstruction by Exploiting Structural Similarities" **Director**: Alexandre Bousse (100%) **Publications**: [J18], [C18], [C19], [C21] **Status**: completed
2017–2020	**Debora Giovagnoli**—IMT **Title**: "3-γ Image Reconstruction using LXe Compton Camera XEMIS2" **Director**: Dimitris Visvikis **Co-director**: Alexandre Bousse (50%) **Publications**: [J20] **Status**: completed

2016–2020	**Ludovica Brusaferri**—UCL **Title**: "Improving Quantification in non-TOF 3D PET/MR by Incorporating Photon Energy Information" **Director**: Kris Thielemans (50%) **Co-supervisor**: Alexnadre Bousse (50%) **Publications**: [J19], [J24], [C22], [C32], [C35] **Status**: completed
2016–2020	**Élise Émond**—UCL **Title**: "Improving Quantification in Lung PET/CT for the Evaluation of Disease Progression and Treatment Effectiveness" **Director**: Kris Thielemans (50%) **Co-supervisor**: Alexnadre Bousse (50%) **Publications**: [J25], [J26], [C25]–[C27] Status: completed
2014–2018	**Yu-Jung Tsai**—UCL **Title**: "Penalised Image Reconstruction Algorithms for Efficient and Consistent Quantification in Emission Tomography" **Director**: Kris Thielemans (50%) **Co-supervisor**: Alexnadre Bousse (50%) **Publications**: [J22], [J27], [C33], [J29], [C36], [C39], [C42] Status: completed
2010–2015	**Sarah Cade**—UCL **Title**: "Attenuation Correction of Myocardial Perfusion Scintigraphy Images without Transmission Scanning" **Director**: Brian F. Hutton (50%) **Co-supervisor**: Alexnadre Bousse (50%) **Publications**: [C58] **Status**: completed

3.3 Master Students Supervision

2024	Antoine De Paepe, Clementine Phung-Ngoc, Apolline Guerineau (ENSAI) "Compressed-sensing for CT reconstruction"
2023	Tiban Dorel (IMT Atlantique) "CT reconstruction with unrolling architectures"
2022	Mariana Yuli Sato do Nascimento (IMT Atlantique) "PET/CT denoising with conditional GANs"
2019	Celia Boutalbi (Université de Bordeaux) "Direct material decomposition in dual-energy CT"

4 Grants and External Funding

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

2025–present	**Projets Intra- et Inter-Instituts Brestois (IB) de l'UBO** (France) Amount awarded: €6,000 **Role: PI**

	Project Title: “Diffusion Spectrale”
2024–present	**Inserm-Inria PhD grant** (France) Amount awarded: €130,000 **Role: PI** Project Title: “Motion-corrected Low-dose PET/CT with Unsupervised Learning”
2024–present	**Région Bretagne / UBO PhD grant** (France) Amount awarded: €130,000 **Role: PI** Project Title: “Motion-compensated CT Reconstruction with Unsupervised Learning”
2023–present	**France Life Imaging WP4** (France) Amount awarded: €20,000 **Role: PI** Project Title: “Deepmulti: Deep Learning Techniques for Multimodal Image Reconstruction”
2020-2024	**ANR – ANR-20-CE45-0020** (France) Amount awarded: €496,800 **Role: PI** Project Title: “MultiRecon: Machine-Learning for Multimodal Medical Image Reconstruction”
2019–2022	**France Life Imaging WP4** (France) Amount awarded: €24,000 **Role: PI** Project Title: “Dual-Tracer in Dynamic PET” (complement funding to the *Émergence* project)
2019–2022	**AO *Émergence Cancéropôle Grand Ouest*** (France) Amount awarded: €15,000 **Role: PI** Project Title: “Dual-Tracer in Dynamic PET”

4.2 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"

5 Academic Service and Scientific Diffusion

5.1 Meetings Organisation

5.1.1 Conferences

2022–present	Member of IEEE Nuclear and Medical Imaging Sciences Council
2023	**Session Chairman**, IEEE Medical Imaging Conference, Vancouver, Canada
2022	**Session Chairman**, IEEE Medical Imaging Conference, Milan, Italy
2021	**Student Paper Awards Committee**, International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine
2018	**Session Chairman**, IEEE Medical Imaging Conference, Sydney, Australia

5.1.2 Workshops

2022	AI Wild West (organiser) https://wildwestworkshop.github.io/
2022	Rencontre Lyonnaise en Imagerie d'Émission (organiser) https://emilyworkshop.github.io/

5.2 Scientific Evaluation

5.2.1 Peer Reviewing

Journal Associate Editor

- IEEE TRPMS
- Frontiers in Medicine

Journal Peer Review

- IEEE Transactions on Medical Imaging
- IEEE Transactions on Biomedical Engineering
- IEEE Transactions on Radiation and Plasma Medical Sciences
- IEEE Transactions on Computational Imaging
- Physics in Medicine and Biology
- Neuroimage
- PLOS one
- Philosophical Transactions A
- Frontiers in Nuclear Medicine
- European Journal of Nuclear Medicine and Molecular Imaging

Grant Peer Review

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

Conference Committee

- MICCAI 2020, 2021, 2022, 2023, 2024, 2025
- Fully 3D 2021, 2023, 2025
- IEEE Nuclear Science Symposium and Medical Imaging Conference 2014, 2015, 2016, 2017, 2018, 2019, 2021, 2022, 2023, 2024

5.2.2 PhD Examination

2023	**Kannara Mom**, "Deep learning-based phase retrieval for X-ray phase contrast imaging", INSA Lyon, Lyon, France.
2023	**Guillaume Corda**, "Joint PET-MR deep learned reconstruction", King's College London, London, UK.
2022	**Louise Friot**, "*Méthodes de reconstruction avancées en tomographie dentaire par faisceau conique*", INSA Lyon, Lyon, France.
2021	**Zacharias Chalampalakis**, "Modelling and Reconstruction of Whole-Body Parametric. Maps in PET-MRI Pharmacological Imaging", Biomaps, Orsay, France.

5.2.3 PhD Jury

2024	**Noel Pinton**, "Synergistic PET/CT Reconstruction using Deep Learning", UBO, Brest, France.
2024	**Zhihan Wang**, "Spectral computed tomographic image reconstruction using deep learning", UBO, Brest, France.
2022	**Suxer Alfonso Garcia**, "Multi-channel computed tomographic image reconstruction by exploiting structural similarities", UBO, Brest, France.
2022	**Sai Sundar Kandarpa**, "Tomographic image reconstruction with direct neural network approaches", UBO, Brest, France.
2020	**Debora Giovagnoli**, "3-γ Image Reconstruction using LXe Compton Camera XEMIS2", UBO, Brest, France.

5.2.4 Other Jurys

2022–present	Jury contrat doctoral établissement (CDE), école doctorale biologie santé, UBO.

5.3 Recent Invited Talks

Jul. 2024	"*Tomodensitométrie à comptage photonique : projets du LaTIM en reconstruction d'image*", LaTIM Day , LaTIM, Brest, France.

Nov. 2023	"*Modèles génératifs pour reconstruction multimodale*", GDR ISIS, INSA, Lyon, France.
Mar. 2022	"Generative Models for Multichannel Image Reconstruction", *Pontificia Universidad Católica de Chile*, Santiago, Chile.
Oct. 2021	"Multirecon: Machine Learning for Multimodal Medical Image Reconstruction", INSA, Lyon, France.
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.

5.4 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

6 Publications

Journal articles & preprints

[J1] A. De Paepe, **A. Bousse**, C. Phung-Ngoc, Y. Mellak, and D. Visvikis, "Adaptive diffusion models for motion-corrected cone-beam head CT," *arXiv preprint arXiv:2504.14033*, 2025. [Online]. Available: https://arxiv.org/abs/2504.14033.

[J2] B. Laurent, **A. Bousse**, T. Merlin, A. Rominger, K. Shi, and D. Visvikis, "Evaluation of deep learning-based scatter correction on a long-axial field-of-view PET scanner," *European journal of nuclear medicine and molecular imaging*, 2025. DOI: 10.1007/s00259-025-07120-6. [Online]. Available: https://arxiv.org/pdf/2501.01341.

[J3] Y. Mellak, **A. Bousse**, T. Merlin, É. Émond, and D. Visvikis, "Dual-input dynamic convolution for positron range correction in PET image reconstruction," *arXiv preprint arXiv:2503.00587*, 2025. [Online]. Available: https://arxiv.org/abs/2503.00587.

[J4] Y. Mellak, **A. Bousse**, T. Merlin, D. Giovagnoli, and D. Visvikis, "Direct3γpet: A pipeline for direct three-gamma PET image reconstruction," *IEEE Transactions on Radiation and Plasma Medical Sciences*, 2025. DOI: 10.1109/TRPMS.2025.3577810. [Online]. Available: https://arxiv.org/pdf/2407.18337.

[J5] C. Phung-Ngoc, **A. Bousse**, A. De Paepe, H.-P. Dang, O. Saut, and D. Visvikis, "Joint reconstruction of activity and attenuation in PET by diffusion posterior sampling in wavelet coefficient space," *arXiv preprint arXiv:2505.18782*, 2025. [Online]. Available: https://arxiv.org/abs/2505.18782.

[J6] N. J. Pinton, **A. Bousse**, C. Cheze-Le Rest, and D. Visvikisc, "Multi-branch generative models for multichannel imaging with an application to PET/CT synergistic reconstruction," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 9, no. 5, pp. 654–666, 2025. DOI: 10.1109/TRPMS.2025.3532176. [Online]. Available: https://arxiv.org/abs/2404.08748.

[J7] C. Vazia, T. Dassow, **A. Bousse**, J. Froment, B. Vedel, F. Vermet, A. Perelli, J.-P. Tasu, and D. Visvikis, "Material decomposition in photon-counting computed tomography with diffusion models: Comparative study and hybridization with variational regularizers," *arXiv preprint arXiv:2503.15383*, 2025. [Online]. Available: https://arxiv.org/pdf/2503.15383.

[J8] H. Xu, **A. Bousse**, and A. Perelli, "Direct dual-energy ct material decomposition using model-based denoising diffusion model," *arXiv preprint arXiv:2507.18012*, 2025. [Online]. Available: https://arxiv.org/pdf/2507.18012.

[J9] J. Zhang, **A. Bousse**, L. Imbert, S. Xue, K. Shi, and J. Bert, "Semi-supervised learning for dose prediction in targeted radionuclide: A synthetic data study," *arXiv preprint arXiv:2503.05367*, 2025. [Online]. Available: https://arxiv.org/pdf/2503.05367.

[J10] **A. Bousse**, V. S. S. Kandarpa, S. Rit, A. Perelli, M. Li, G. Wang, J. Zhou, and G. Wang, "Systematic review on learning-based spectral CT," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 8, no. 2, pp. 113–137, 2024. DOI: 10.1109/TRPMS.2023.3314131. [Online]. Available: https://arxiv.org/abs/2304.07588.

[J11] **A. Bousse**, V. S. S. Kandarpa, K. Shi, K. Gong, J. S. Lee, C. Liu, and D. Visvikis, "A review on low-dose emission tomography post-reconstruction denoising with neural network approaches," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 8, no. 4, pp. 333–347, 2024. DOI: 10.1109/TRPMS.2023.3349194. [Online]. Available: https://arxiv.org/abs/2401.00232.

[J12] V. Gautier, **A. Bousse**, F. Sureau, C. Comtat, V. Maxim, and B. Sixou, "Bimodal PET/MRI generative reconstruction based on VAE architectures," *Physics in Medicine & Biology*, vol. 69, 2024. DOI: 10.1088/1361-6560/ad9133. [Online]. Available: https://iopscience.iop.org/article/10.1088/1361-6560/ad9133.

[J13] J. Molina, **A. Bousse**, T. Catalán, Z. Wang, M. Petrache, F. Sahli, C. Prieto, and M. Courdurier, "CConnect: Synergistic convolutional regularization for cartesian T2* mapping," *arXiv preprint arXiv:2404.18182*, 2024. [Online]. Available: https://arxiv.org/abs/2404.18182.

[J14] Z. Wang, **A. Bousse**, F. Vermet, J. Froment, B. Vedel, A. Perelli, J.-P. Tasu, and D. Visvikis, "Uconnect: Synergistic spectral CT reconstruction with U-Nets connecting the energy bins," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 8, no. 2, pp. 222–233, 2024. DOI: 10.1109/TRPMS.2023.3330045. [Online]. Available: https://arxiv.org/abs/2311.00666.

[J15] B. Laurent, **A. Bousse**, T. Merlin, S. Nekolla, and D. Visvikis, "PET scatter estimation using deep learning U-net architecture," *Physics in Medicine & Biology*, vol. 68, no. 6, p. 065 004, 2023. DOI: 10.1088/1361-6560/ac9a97.

[J16] V. S. S. Kandarpa, A. Perelli, **A. Bousse**, and D. Visvikis, "LRR-CED: Low-resolution reconstruction-aware convolutional encoder–decoder network for direct sparse-view CT image reconstruction," *Physics in Medicine & Biology*, vol. 67, no. 15, p. 155 007, 2022. DOI: 10.1088/1361-6560/ac7bce.

[J17] F. Lamare, **A. Bousse**, K. Thielemans, C. Liu, T. Merlin, H. Fayad, and D. Visvikis, "PET respiratory motion correction: Quo vadis?" *Physics in Medicine & Biology*, vol. 67, no. 3, 03TR02, 2022. DOI: 10.1088/1361-6560/ac43fc. [Online]. Available: https://hal.science/hal-04090024.

[J18] A. Perelli, S. L. Alfonso Garcia, **A. Bousse**, J.-P. Tasu, N. Efthimiadis, and D. Visvikis, "Multi-channel convolutional analysis operator learning for dual-energy CT reconstruction," *Physics in Medicine & Biology*, vol. 67, no. 6, p. 065 001, 2022. DOI: 10.1088/1361-6560/ac4c32. [Online]. Available: https://arxiv.org/abs/2203.05968v1.

[J19] 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 attenuation reconstruction in non-TOF 3D PET from multiple-energy window data," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 6, no. 1, pp. 87–97, 2021. DOI: 10.1109/TRPMS.2021.3064239.

[J20] 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*, vol. 5, no. 6, pp. 826–834, 2021. DOI: 10.1109/TRPMS.2020.3046409.

[J21] 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.

[J22] 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.

[J23] **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.

[J24] L. Brusaferri, **A. Bousse**, É. C. Émond, R. Brown, Y.-J. Tsai, D. Atkinson, S. Ourselin, C. C. Watson, B. F. Hutton, S. Arridge, *et al.*, "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.

[J25] 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.

[J26] É. C. Émond, **A. Bousse**, M. Machado, J. Porter, 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.

[J27] 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.

[J28] A. Iborra, A. J. González, A. Gonzalez-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.

[J29] Y.-J. Tsai, **A. Bousse**, M. J. Ehrhardt, C. W. Stearns, S. Ahn, B. F. 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.

[J30] **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.

[J31] **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.

[J32] **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.

[J33] J. Jiao, **A. Bousse**, K. Thielemans, N. Burgos, P. S. J. Weston, J. M. Schott, D. Atkinson, S. R. Arridge, B. F. Hutton, P. Markiewicz, 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, 2016. DOI: 10.1109/TMI.2016.2594150. [Online]. Available: https://doi.org/10.1109/TMI.2016.2594150.

[J34] B. A. Thomas, V. Cuplov, **A. Bousse**, A. Mendes, K. Thielemans, B. F. 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.

[J35] D. Salvado, K. Erlandsson, **A. Bousse**, M. Occhipinti, P. Busca, C. Fiorini, and B. F. Hutton, "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.

[J36] 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.

[J37] 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.

[J38] **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.

[J39] 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.

[J40] **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.

[J41] 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.

[J42] **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. [Online]. Available: https://doi.org/10.1016/j.rbmret.2007.01.001.

Conference proceedings and presentations

[C1] T. Dassow, C. Vazia, A. Perelli, D. Visvikis, and **A. Bousse**, "Out-of-database diffusion posterior sampling for spectral CT material decomposition," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2025.

[C2] A. De Paepe, **A. Bousse**, C. Phung-Ngoc, and D. Visvikis, "Solving blind inverse problems: Adaptive diffusion models for motion-corrected sparse-view 4DCT," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2025. [Online]. Available: https://arxiv.org/abs/2501.12249.

[C3] C. Phung-Ngoc, **A. Bousse**, A. De Paepe, H.-P. Dang, O. Saut, and D. Visvikis, "Joint reconstruction of the activity and the attenuation in PET by diffusion posterior sampling: A feasibility study," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2025. [Online]. Available: https://arxiv.org/pdf/2412.11776.

[C4] Z. Wang, **A. Bousse**, F. Vermet, J. Froment, B. Vedel, A. Perelli, and D. Visvikis, "MHUconnect: Multi-head U-Net connecting all energy bins for synergistic spectral CT reconstruction," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2025.

[C5] V. Gautier, C. Comtat, F. Sureau, **A. Bousse**, V. Maxim, and B. Sixou, "Synergistic PET/MR reconstruction with VAE constraint," in *EUSIPCO 2024-32nd European Signal Processing Conference*, 2024. DOI: 10.23919/EUSIPCO63174.2024.10715319. [Online]. Available: https://hal.science/hal-04754695/document.

[C6] Y. Mellak, **A. Bousse**, T. Merlin, É. C. Émond, and D. Visvikis, "One linear layer is all you need for positron range estimation and correction," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Detector Conference*, IEEE, 2024, pp. 1–1.

[C7] Y. Mellak, **A. Bousse**, T. Merlin, B. Laurent, and D. Visvikis, "Detector-pixel interactions via transformer encoders: A direct approach for PET image reconstruction," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Detector Conference*, IEEE, 2024, pp. 1–1.

[C8] Y. Mellak, K. Chatzipapas, **A. Bousse**, C. Chez-Le Rest, D. Visvikis, and J. Bert, "Fast-track of F-18 positron paths simulations using GANs," in *2024 IEEE 21st international symposium on biomedical imaging (ISBI 2024)*, IEEE, 2024. [Online]. Available: https://arxiv.org/abs/2403.06307.

[C9] C. Vazia, **A. Bousse**, J. Froment, B. Vedel, F. Vermet, Z. Wang, T. Dassow, J.-P. Tasu, and D. Visvikis, "Spectral CT two-step and one-step material decomposition using diffusion posterior sampling," in *European Signal Processing Conference (EUSIPCO)*, 2024. DOI: 10.23919/EUSIPCO63174.2024.10715152. [Online]. Available: https://arxiv.org/abs/2403.10183.

[C10] C. Vazia, **A. Bousse**, B. Vedel, F. Vermet, Z. Wang, T. Dassow, J.-P. Tasu, D. Visvikis, and J. Froment, "Diffusion posterior sampling for synergistic reconstruction in spectral computed tomography," in *2024 IEEE 21st international symposium on biomedical imaging (ISBI 2024). IEEE*, 2024. [Online]. Available: https://arxiv.org/abs/2403.06308.

[C11] J. Zhang, **A. Bousse**, Y. Li, S. Xue, K. Shi, D. Visvikis, and J. Bert, "Pre-therapy dose prediction in targeted radionuclide therapy using semi-supervised learning: An in-silico preliminary study," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Detector Conference*, IEEE, 2024, pp. 1–1.

[C12] V. Gautier, C. Comtat, F. Sureau, **A. Bousse**, L. Friot-Giroux, V. Maxim, and B. Sixou, "VAE constrained MR guided PET reconstruction," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2023.

[C13] N. J. Pinton, **A. Bousse**, C. Cheze-Le Rest, and D. Visvikis, "Joint PET/CT reconstruction using a double variational autoencoder," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2023.

[C14] N. J. Pinton, **A. Bousse**, Z. Wang, C. Cheze-Le Rest, V. Maxim, C. Comtat, F. Sureau, and D. Visvikis, "Synergistic PET/CT reconstruction using a joint generative model," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2023.

[C15] V. S. S. Kandarpa, **A. Bousse**, T. Merlin, A. Perelli, S. Xue, R. Ma, Y. Li, H. Sari, A. Rominger, K. Shi, and D. Visvikis, "C-DenseNet: A direct neural network-based approach for total body PET image reconstruction," in *IEEE Nuclear Science Symposium, , Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2022.

[C16] Y. Mellak, D. Giovagnoli, **A. Bousse**, and D. Visvikis, "Three-gamma PET image reconstruction using graph neural networks," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2022.

[C17] Z. Wang, **A. Bousse**, F. Vermet, N. J. Pinton, J. Froment, B. Vedel, J.-P. Tasu, and D. Visvikis, "Synergistic multi-energy reconstruction with a deep penalty "connecting the energies"," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2022.

[C18] S. L. Alfonso Garcia, A. Perelli, **A. Bousse**, and D. Visvikis, "Dual-energy CT reconstruction with convolutional analysis operator learning," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2021.

[C19] 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.

[C20] V. S. S. 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2021.

[C21] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2020.

[C22] L. Brusaferri, É. 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2020.

[C23] B. Laurent, T. Merlin, **A. Bousse**, and D. Visvikis, "Deep learning based scatter correction for PET imaging," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2020.

[C24] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2020.

[C25] É. 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, IEEE, 2019, pp. 1–3.

[C26] É. C. Émond, **A. Bousse**, L. Brusaferri, A. M. Groves, B. F. Hutton, and K. Thielemans, "Mass preservation for respiratory motion registration in both PET and CT," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2019.

[C27] 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.

[C28] A. Iborra, J. González, A. González-Montoro, **A. Bousse**, and D. Visvikis, "Ensemble of neural networks for 3D position estimation in monolithic PET detectors," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2019.

[C29] V. S. S. V. S. S. Kandarpa, D. Benoit, **A. Bousse**, and D. Visvikis, "Direct image reconstruction using generative deep learning networks," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2019.

[C30] **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," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2018.

[C31] **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," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2018.

[C32] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2018. DOI: 10.1109/NSSMIC.2018.8824557.

[C33] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2018. DOI: 10.1109/NSSMIC.2018.8824558.

[C34] **A. Bousse**, B. F. Hutton, and K. Thielemans, "Fast gated PET direct motion estimation using ordered subsets," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2017. DOI: 10.12059/Fully3D.2017-11-3202020. [Online]. Available: http://onlinelibrary.fully3d.org/papers/2017/Fully3D.2017-11-3202020.pdf.

[C35] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2017. DOI: 10.1109/NSSMIC.2017.8532765.

[C36] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2017. DOI: 10.1109/NSSMIC.2017.8532925.

[C37] **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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2016. DOI: 10.1109/NSSMIC.2016.8069448.

[C38] A. Rashidnasab, **A. Bousse**, B. F. Holman, B. F. Hutton, and K. Thielemans, "Joint reconstruction of activity and attenuation in dynamic PET," in *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2016. DOI: 10.1109/NSSMIC.2016.8069456.

[C39] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2016. DOI: 10.1109/NSSMIC.2016.8069458.

[C40] **A. Bousse**, O. Bertolli, D. Atkinson, S. Arridge, S. Ourselin, B. F. 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.

[C41] 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.

[C42] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2015. DOI: 10.1109/NSSMIC.2015.7582101.

[C43] **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.

[C44] **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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2014, pp. 1–3. DOI: 10.1109/NSSMIC.2014.7430828.

[C45] 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," in *Medical Image Computing and Computer-Assisted Intervention–MICCAI 2014: 17th International Conference, Boston, MA, USA, September 14–18, 2014, Proceedings, Part I 17*, Springer, 2014, pp. 114–121. DOI: 10.1007/978-3-319-10404-1_15.

[C46] D. Salvado, K. Erlandsson, **A. Bousse**, M. Occhipinti, P. Busca, 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. [Online]. Available: https://doi.org/10.1186/2197-7364-1-S1-A21.

[C47] **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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2013, pp. 1–6. DOI: 10.1109/NSSMIC.2013.6829221.

[C48] **A. Bousse**, K. Erlandsson, S. Pedemonte, S. Ourselin, S. Arridge, and B. F. Hutton, "Angular rebinning for geometry independent SPECT reconstruction," in *International Conference on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2013.

[C49] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2013, pp. 1–4. DOI: 10.1109/NSSMIC.2013.6829144.

[C50] **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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2012, pp. 3918–3924. DOI: 10.1109/NSSMIC.2012.6551899.

[C51] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2012, pp. 2902–2906. DOI: 10.1109/NSSMIC.2012.6551662.

[C52] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2012, pp. 2161–2165. DOI: 10.1109/NSSMIC.2012.6551494.

[C53] 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.

[C54] 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 Biomed. Imag.: From Nano to Macro*, 2011, pp. 1158–1161. DOI: 10.1109/ISBI.2011.5872607.

[C55] S. Pedemonte, **A. Bousse**, B. F. Hutton, S. Arridge, and S. Ourselin, "4-D generative model for PET/MRI reconstruction," in *Medical Image Computing and Computer-Assisted Intervention–MICCAI 2011: 14th International Conference, Toronto, Canada, September 18–22, 2011, Proceedings, Part I 14*, Springer, 2011, pp. 581–588. DOI: 10.1007/978-3-642-23623-5_73.

[C56] 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.

[C57] **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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2010, pp. 3519–3522. DOI: 10.1109/NSSMIC.2010.5874462.

[C58] 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.

[C59] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2010, pp. 3301–3307. DOI: 10.1109/NSSMIC.2010.5874415.

[C60] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2010, pp. 2657–2661. DOI: 10.1109/NSSMIC.2010.5874272.

[C61] 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 Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detectors Conference*, 2010, pp. 3292–3300. DOI: 10.1109/NSSMIC.2010.5874414.

[C62] **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.

[C63] 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, pp. 886–897. DOI: 10.1117/12.769478. [Online]. Available: https://hal.archives-ouvertes.fr/inserm-00335244.

[C64] G. Yang, **A. Bousse**, C. Toumoulin, and H. Shu, "Simulation environment for the evaluation of 3D coronary tree reconstruction algorithms in rotational angiography," in *International Conference of the IEEE Engineering in Medicine and Biology Society*, 2007, pp. 4484–4487. DOI: 10.1109/IEMBS.2007.4353335.

[C65] S. Laguitton, C. Boldak, **A. Bousse**, G. Yang, and C. Toumoulin, "Temporal tracking of coronaries in MSCTA by means of 3D geometrical moments," in *International Conference of the IEEE Engineering in Medicine and Biology Society*, 2006, pp. 924–927. DOI: 10.1109/IEMBS.2006.260670.

[C66] G. Yang, **A. Bousse**, C. Toumoulin, and H. Shu, "A multiscale tracking algorithm for the coronary extraction in MSCT angiography," in *International Conference of the IEEE Engineering in Medicine and Biology Society*, 2006, pp. 3066–3069. DOI: 10.1109/IEMBS.2006.260712.

[C67] J. Brieva, E. M. Á. González, F. González, **A. Bousse**, and J.-J. Bellanger, "A level set method for vessel segmentation in coronary angiography," in *International Conference of the IEEE Engineering in Medicine and Biology Society*, vol. 6, 2005, pp. 6348–6351. DOI: 10.1109/IEMBS.2005.1615949.