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Employment

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Graz, Austria
1 Mar 2024 → present

Research outputs

Optimizing Aortic Segmentation with an Innovative Quality Assessment: The Role of Global Sensitivity Analysis
Melito, G. M., Pepe, A., Jafarinia, A., Krispel, T. & Egger, J., 14 Feb 2024, *Segmentation of the Aorta. Towards the Automatic Segmentation, Modeling, and Meshing of the Aortic Vessel Tree from Multicenter Acquisition - First Challenge, SEG.A. 2023, Held in Conjunction with MICCAI 2023, Proceedings: Towards the Automatic Segmentation, Modeling, and Meshing of the Aortic Vessel Tree from Multicenter Acquisition*. Pepe, A., Melito, G. M. & Egger, J. (eds.). Vol. 1. p. 110-126 17 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 14539 LNCS).

Modeling Anisotropic Electrical Conductivity of Blood: Translating Microscale Effects of Red Blood Cell Motion into a Macroscale Property of Blood

Jafarinia, A., Badeli, V., Krispel, T., Melito, G. M., Brenn, G., Reinbacher-Köstinger, A., Kaltenbacher, M. & Hochrainer, T., 1 Feb 2024, In: *Bioengineering*. 11, 2, 19 p., 147.

Morphological parameters affecting false lumen thrombosis following type B aortic dissection: a systematic study based on simulations of idealized models

Jafarinia, A., Melito, G. M., Müller, T. S., Rolf-Pissarczyk, M., Holzapfel, G., Brenn, G., Ellermann, K. & Hochrainer, T., Jun 2023, In: *Biomechanics and Modeling in Mechanobiology*. 22, 3, p. 885–904 20 p.

Development of a reduced-order model for understanding FL thrombosis in type B aortic dissection using a global sensitivity analysis and polynomial chaos expansion

Melito, G. M., Jafarinia, A., Müller, T. S., Rolf-Pissarczyk, M., Holzapfel, G., Brenn, G., Hochrainer, T. & Ellermann, K., 2023, *Proceedings of the 7th ECCOMAS Young Investigators Conference (ECCOMAS YIC 2023) Creators*.

Monitoring of false lumen thrombosis in type B aortic dissection by impedance cardiography - A multiphysics simulation study

Badeli, V., Jafarinia, A., Melito, G. M., Müller, T. S., Reinbacher-Köstinger, A., Hochrainer, T., Brenn, G., Ellermann, K., Biro, O. & Kaltenbacher, M., 12 Dec 2022, (E-pub ahead of print) In: *International Journal for Numerical Methods in Biomedical Engineering*. e3669.

Bayesian inference of multi-sensors impedance cardiography for detection of aortic dissection

Badeli, V., Ranftl, S., Melito, G. M., Reinbacher-Koestinger, A., Von der Linden, W., Ellermann, K. & Biro, O., 14 Apr 2022, In: *COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering*. 41, 3, p. 824-839 16 p.

Sensitivity analysis for model optimization and calibration in type B aortic dissection

Melito, G. M., 13 Apr 2022, 125 p.

Sensitivity analysis study on the effect of the fluid mechanics assumptions for the computation of electrical conductivity of flowing human blood

Melito, G. M., Müller, T. S., Badeli, V., Ellermann, K., Brenn, G. & Reinbacher-Köstinger, A., Sept 2021, In: *Reliability Engineering & System Safety*. 213, 12 p., 107663.

Sensitivity Analysis of a Phenomenological Thrombosis Model and Growth Rate Characterisation

Melito, G. M., Jafarinia, A., Hochrainer, T. & Ellermann, K., 9 Dec 2020, In: Journal of Biomedical Engineering and Biosciences . 7, p. 31 - 40 10 p.

Sensitivity Analysis of a Hemodynamic-based Model for Thrombus Formation and Growth

Melito, G. M., Jafarinia, A., Hochrainer, T. & Ellermann, K., 31 Jul 2020, *Proceedings of the 6th World Congress on Electrical Engineering and Computer Systems and Sciences (EECSS'20): ICBES'20*. Virtually, 8 p. ICBES 127

Electrode positioning to investigate the changes of the thoracic bioimpedance caused by aortic dissection – a simulation study

Badeli, V., Melito, G. M., Reinbacher-Köstinger, A., Biro, O. & Ellermann, K., 25 Jun 2020, In: Journal of Electrical Bioimpedance. 11, 1, p. 38-48 11 p., 1891-5469.

Numerical simulation of various electrode configurations in impedance cardiography to identify aortic dissection

Reinbacher-Köstinger, A., Badeli, V., Melito, G. M., Magele, C. & Biro, O., 17 Mar 2020, *17th International Conference on Electrical Bioimpedance, ICEBI 2019: ICEBI 2019, Joinville, Santa Catarina, Brazil, 9-14 June 2019*. Bertemes-Filho, P. (ed.). Springer Singapore, p. 51-54 4 p. (IFMBE Proceedings; vol. 72).

A comprehensive Workflow and Framework for immersive Virtual Endoscopy of dissected Aortae from CTA Data

Egger, J., Gunacker, S., Pepe, A., Melito, G. M., Gsaxner, C., Li, J., Ellermann, K. & Chen, X., 16 Mar 2020, *Medical Imaging 2020: Image-Guided Procedures, Robotic Interventions, and Modeling*. Fei, B. & Linte, C. A. (eds.). Vol. 11315. 1131531. (Proceedings of SPIE - The International Society for Optical Engineering; vol. 11315).

On the Diagnosis of Aortic Dissection with Impedance Cardiography: A Bayesian Feasibility Study Framework with Multi-Fidelity Simulation Data

Ranftl, S., Melito, G. M., Badeli, V., Reinbacher-Köstinger, A., Ellermann, K. & Linden, W. V. D., Dec 2019, In: Proceedings MDPI AG.

Sensitivity analysis for electrical detection of aortic dissection

Melito, G. M., Badeli, V., Reinbacher-Köstinger, A. & Ellermann, K., Nov 2019, *Proceedings in Applied Mathematics and Mechanics: 90th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM)*. Wiley-VCH , Vol. 19,1. 2 p. e201900062

A Reliability Analysis with an Active-learning Metamodel for the Reconstruction of a Dissected Aorta Cross-section

Melito, G. M. & Ellermann, K., 28 Oct 2019.

Numerical simulation of various electrode configurations in impedance cardiography to identify aortic dissection

Reinbacher-Köstinger, A., Badeli, V., Melito, G. M., Magele, C. & Biro, O., 10 Jun 2019, (Unpublished).

Bayesian Uncertainty Quantification with Multi-Fidelity Data and Gaussian Processes for Impedance Cardiography of Aortic Dissection

Ranftl, S., Melito, G. M., Badeli, V., Reinbacher-Köstinger, A., Ellermann, K. & Linden, W. V. D., 2019, In: Entropy.

Activities

SEG.A. 2023 - Towards the Automatic Segmentation, Modeling and Meshing of the Aortic Vessel Tree from Multicenter Acquisitions (Event)

Antonio Pepe (Editor), Gian Marco Melito (Editor) & Jan Egger (Editor)
11 Mar 2024

SEG.A. 2023 - Towards the Automatic Segmentation, Modeling and Meshing of the Aortic Vessel Tree from Multicenter Acquisitions

Antonio Pepe (Organiser), Gian Marco Melito (Organiser) & Jan Egger (Organiser)
8 Oct 2023

Development of a ROM for understanding FL thrombosis in type B aortic dissection using a global sensitivity analysis and polynomial chaos expansion

Gian Marco Melito (Speaker), Alireza Jafarinia (Contributor), Thomas Stephan Müller (Contributor), Malte Rolf-Pissarczyk (Contributor), Gerhard Holzapfel (Contributor), Günter Brenn (Contributor), Thomas Hochrainer (Contributor) & Katrin Ellermann (Contributor)

19 Jun 2023

SEG.A. 2023 - Towards the Automatic Segmentation, Modeling and Meshing of the Aortic Vessel Tree from Multicenter Acquisitions

Antonio Pepe (Organiser), Gian Marco Melito (Organiser) & Jan Egger (Organiser)

15 Jun 2023 → 31 Aug 2023

Impact of false lumen thrombosis on blood flow dynamics and electrical conductivity in type B aortic dissection

Gian Marco Melito (Speaker), Vahid Badeli (Contributor), Alireza Jafarinia (Contributor), Thomas Stephan Müller (Contributor), Alice Reinbacher-Köstinger (Contributor), Thomas Hochrainer (Contributor), Günter Brenn (Contributor), Oszkár Bíró (Contributor), Manfred Kaltenbacher (Contributor) & Katrin Ellermann (Contributor)

1 Oct 2022

Time calibration of a novel phenomenological thrombus formation model through global sensitivity analysis and a Bayesian approach

Gian Marco Melito (Speaker), Alireza Jafarinia (Contributor), Sascha Ranftl (Contributor), Wolfgang von der Linden (Contributor), Thomas Hochrainer (Contributor) & Katrin Ellermann (Contributor)

7 Jun 2022

Sensitivity analysis of a hemodynamic-based model for thrombus formation and growth

Gian Marco Melito (Speaker), Alireza Jafarinia (Contributor), Thomas Hochrainer (Contributor) & Katrin Ellermann (Contributor)

15 Aug 2020

A Reliability Analysis with an Active-learning Metamodel for the Reconstruction of a Dissected Aorta Cross-section

Gian Marco Melito (Speaker) & Katrin Ellermann (Contributor)

29 Oct 2019

Projects

Aortic Dissection

Egger, J., Pepe, A., Schmalstieg, D., Schüssnig, R., von der Linden, W., Melito, G. M., Holzapfel, G., Ramalho Queiroz Pacheco, D., Jafarinia, A., Brenn, G., Ranftl, S., Müller, T. S., Gupta, I., Steinbach, O., Fries, T., Badeli, V., Hochrainer, T., Schanz, M., Rolf-Pissarczyk, M., Biro, O. & Ellermann, K.

1/01/18 → 31/12/20