	ZUN, Pavel S. PhD (Amsterdam University)
Research interests	Applying computer models, both imitation-based and ML-based, to improve understanding of tissue function and properties, to find ways to design better medical devices and to grow tissues in vitro for transplantology; validation and verification of these models. Main application area is cardiology and the circulatory system.
List of the supervisor's research projects (participation/supervision)	Supervision: ✓ R&D of Masters and PhD students of ITMO University No. 621291, "Predictive modeling of the circulatory system. Verification and validation", 2021-2022 ✓ Consulting services for the development of a multiscale model of tissue growth in a blood vessel, methods for its verification and validation, and ways to adapt clinical data for model validation. Client: Faculty of Science of the University of Amsterdam, Contract No. 71066. 2021-2022 ✓ RSF project #20-71-10108 "Modelling magnetic nanoparticle propagation in human circulatory system for targeted drug delivery", 2022-2023 Participation: ✓ RSF project #20-71-10108 "Modelling magnetic nanoparticle propagation in human circulatory system for targeted drug delivery", 2020-2022 ✓ RSF project #14-11-00826 "Multiscale modeling of dynamic processes in the blood vessels after stenting", 2014-2018 ✓ FTP 14.575.21.0161 "Technology for personalized recommendations for patients with chronic diseases based on hybrid life process modeling", 2017-2020 ✓ 715788, Information technology for the lifecycle of next-generation decision support systems for personalized medicine tasks, 2015-2017 ✓ RFBR project #18-015-00504 "Personalization methods for blood circulation model based on routine clinical examinations", 2018-2020 ✓ EU Horizon 2020 programme under Grant Agreement 777119, the "In-silico trials for drug-eluting BVS design, development and evaluation" (InSilc) project, 2019-2020 ✓ RSF project #20-71-10108 "Modelling magnetic nanoparticle propagation in human circulatory system for targeted drug delivery", 2020-2022

	✓ EU Horizon 2020 programme under Grant Agreement 800925, the "Verified Exascale Computing for Multiscale Applications" (VECMA) project, 2020-2021
List of potential thesis topics	✓ Computer vision-based analysis of AFM images ✓ Automatic segmentation and analysis of cell colony images ✓ Agent-based modelling of 3D cell-based tissues ✓ Materials modeling for regenerative medicine
Publications in the last five years	15 (Scopus / Web of Science)
Key publications	1. Ye D. et al. Uncertainty quantification of a three-dimensional in-stent restenosis model with surrogate modelling //Journal of the Royal Society Interface. – 2022. – T. 19. – №. 187. – C. 20210864 2. Huaman I., Zun P., Shramko O., Svitenkov A. Coupling 1D blood circulation model and substance absorption to study drug metabolization // Procedia Computer Science. – 2022. – V. 212 – Pp. 114-121 3. Zun P., Svitenkov A., Hoekstra A. Effects of local coronary blood flow dynamics on the predictions of a model of in-stent restenosis //Journal of Biomechanics. – 2021. – T. 120. – C. 110361 4. Zun P. S. et al. Location-specific comparison between a 3D in-stent restenosis model and micro-CT and histology data from porcine in vivo experiments //Cardiovascular engineering and technology. – 2019. – T. 10. – №. 4. – C. 568-582 5. Zun P. S. et al. A particle-based model for endothelial cell migration under flow conditions //Biomechanics and Modeling in Mechanobiology. – 2019. – C. 1-12
Code of the subject area of the PhD program	1.2.1 Artificial Intelligence and Machine Learning 1.2.2 Mathematical Modeling, Numerical Methods and Software Complexes