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Biomedical Image Registration

10th International Workshop, WBIR 2022
Munich, Germany, July 10–12, 2022
Proceedings

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Preface

The 10th International Workshop on Biomedical Image Registration (WBIR 2022, <https://2022.wbir.info>) was held in Munich, Germany, during July 10–12, 2022. After many missed conferences due to the COVID-19 pandemic, we sincerely hoped that 2022 would be a fresh restart for in-person and hybrid meetings that support exchange and collaboration within the WBIR community.

The WBIR 2022 meeting was a two-and-a-half-day workshop endorsed by the MICCAI society and supported by its new “Special Interest Group on Biomedical Image Registration” (SIG-BIR). It was organized in close spatial and temporal proximity to the Medical Imaging with Deep Learning (MIDL 2022) conference to enable interested researchers to minimize travel. Preceding editions of WBIR have run mostly as standalone two-day workshops at various locations: Bled, Slovenia (1999); Philadelphia, USA (2003); Utrecht, The Netherlands (2006); Lübeck, Germany (2010); Nashville, USA (2012); London, UK (2014); Las Vegas, USA (2016); Leiden, The Netherlands (2018), and Portorož, Slovenia (2020 / virtually). As with previous editions, the major appeal of WBIR 2022 was bringing together researchers from different backgrounds and countries, and at different points in their academic careers, who all share a great interest in image registration. Based on our relaxed two-and-a-half-day format with tutorials, three keynotes, and a main scientific program with short and long oral presentations, as well as in-person poster presentations, WBIR 2022 enabled space for lots of interaction and ample discussion among peers. As everyone’s mindset is on image registration, it makes it easier for students to approach and meet their distinguished colleagues.

The WBIR 2022 proceedings, published in the Lecture Notes in Computer Science series, were established through two cycles of peer-review using OpenReview (for the first time). Full papers were reviewed in a double-blind fashion, with each submission evaluated by at least three members of the Program Committee. The Program Committee consisted of 25 experienced scientists in the field of medical image registration. All papers and reviews were afterwards discussed in an online meeting by the Paper Selection Committee to reach decisions. Short papers were categorized as either exciting early-work or abstracts of recently published/submitted long articles. Those submissions went through a lighter peer-review process, each being assigned to two members of the Paper Selection Committee. From a total of 34 submissions, 30 were selected for oral and poster presentation and 26 original works are included in these proceedings. Prominent topics include optimization, deep learning architectures, neuroimaging, diffeomorphisms, uncertainty, topology, and metrics. The presenting authors at WBIR 2022 represented a delightful diverse community with approximately 45% female speakers, nine papers from groups outside of Europe (primarily the USA), and academic levels ranging from Master’s and PhD students to lecturers. To further stimulate participation from Asia, Africa, and South America we established a scholarship program that received 25 applications.

We were grateful to have three excellent keynote speakers at WBIR 2022. With rich experience in conducting numerous medical image computing projects from early

feasibility to product implementation, Wolfgang Wein from ImFusion (Germany) spoke about combining visual computing with machine learning for improved registration in image-guided interventions. Maria Vakalopoulou, who is an expert on deep learning for biomedical image analysis from Paris-Saclay University (France), discussed classical and deep learning-based registration methods and their impacts on clinical diagnosis. Finally, Josien Pluim, head of the Medical Image Analysis group at Eindhoven University of Technology (The Netherlands), provided a historical overview of trends in image registration, going back to the first papers on the topic and taking us through some of the most important advances until today.

Many people contributed to the organization and success of WBIR 2022. In particular, we would like to thank the members of the Program Committee and the additional Paper Selection Committee members (Stefan Klein and Žiga Špiclin) for their work that assured the high quality of the workshop. We thank the MICCAI SIG-BIR group for their financial support and the MICCAI Society for their endorsement. Finally, we would like to thank all authors and participants of WBIR 2022 for their contributions.

June 2022

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