Preface

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Before you lie the proceedings of the first international workshop on *geo*metric deep learning in *med*ical *i*mage *a*nalysis (GeoMedIA). This workshop was held as a full-day event at Hotel Casa in Amsterdam, The Netherlands on November 18, 2022. GeoMedIA brought together over 200 attendees interested in the fields of geometric deep learning and medical image analysis. Our motivation for organizing this workshop was as follows.

In the past years, deep learning methods have taken the medical imaging community by storm. Convolutional neural networks (CNNs) excel at 2D or 3D image analysis, but at the same time, there is a growing realization that not all data is organized on an ordered grid. In many real-world medical applications, for example, genetics and brain imaging, the available data is naturally represented in a non-Euclidean space (e.g., graphs and manifolds). Moreover, data with which the medical imaging community is working contains many translational, rotational, and other symmetries that can be exploited by incorporation in problem design or neural network architectures. For these reasons, geometric deep learning has gained significant popularity in the medical domain. This has been reflected in a significant increase in the body of literature using geometric deep learning for challenging medical imaging tasks including image registration, segmentation, and classification.

In this workshop, we aimed to draw attention to current developments in geometric deep learning for medical image analysis. Our objective was to inspire researchers and to expose the vast richness of geometric structure in medical image data through a day of exciting keynotes, contributed talks, and a panel discussion with experts. Topics included but were not limited to group convolutions, mesh CNNs, or graph neural networks with geometric priors.

The GeoMedIA proceedings include all peer-reviewed full papers presented at the workshop. In addition, the workshop included a non-archival extended abstract track for recently published papers or works in progress. In total, 25 works were presented at the workshop: the 14 full-length papers that lie before you, and 11 extended abstracts.

Program committee

We thank the following experts for taking part in the program committee of GeoMedIA and providing insightful reviews of the submitted full papers:

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