

MICCAI Special Interest Group Biomedical Image Registration (SIG-BIR)

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Motivation / Mission

- 🐼 **Image registration's importance in medical imaging is underrepresented at MICCAI**, attributed to the complexity of applying deep learning to its ill-posed nature w/o real ground truth.
- 🦄 There is still much **scope for novel methods** (research gap) to **improve clinical impact** and there is not yet a one-fits all solution available
- 🌈 The fragmented image registration community would **benefit from specialised gatherings** to enhance collaboration and research ties.

Learn2Reg 2020-2024

cuRIOUS MRT1w & FLAIR / US Intra-patient 22 Train / 10 Test	Hippocampus MR MRT1w / MRT1w Inter-patient 263 Train / 131 Test	Abdomen CT-CT CT / CT Inter-patient 30 Train / 20 Test	Abdomen MR-CT MRT1w / CT Intra-patient 8 Train / 8 Test
OASIS MRT1w / MRT1w Intra-patient 416 Train / 39 Test	Lung CT CT / CT Intra-patient 20 Train / 10 Test	NLST CT / CT Intra-patient 100 Train / 15 Test	Thorax CBCT CT / CBCT Intra-patient 14 Train / 4 Test
ReMIND2Reg MR ceT1w & T2w / iUS Intra-patient 155 Train / 40 Test	LUMIR MRT1w / MRT1w Inter-patient 3384 Train / 590 Test	COMULISglobe SHG-BF SHG / BF Intra-patient 156 Train / 40 Test	COMULISglobe 3D-CLEM FIB SEM & SBF SEM / LM Intra-patient 40 Train / 20 Test

Awesome Medical Image Registration

- 🚀 **2024 awesome medical registration initiative** to collect well-explained code that is applicable out-of-the-box to at least two Learn2Reg tasks
github.com/sigbir/awesome
 make image registration **more accessible and reproducible**, gain visibility and win monetary awards



Activities

- 🏆 **Challenges: Learn2Reg '20-'24, OncoReg '23-'24** to provide much needed standardised training data and evaluation metrics, comprising 12 datasets with labels and many active leaderboards
 → participate at learn2reg.grand-challenge.org
- 📄 **11th Workshop on Biomedical Image Registration** organised by Marc Modat, Ivor Simpson, Žiga Špiclin and many more for the first time at MICCAI '24
 → see <https://wbir.info> for programme and papers
- 🚀 **2024 awesome medical registration initiative** to collect well-explained code that is applicable out-of-the-box to at least two Learn2Reg tasks

WBIR 2024

- 28 peer-reviewed full papers** each with oral (long or spotlight) and poster are presented on topics like novel deep **learning architectures, robustness**, atlases, multi-modal fusion, image similarity evaluation, efficiency etc. Aiming to **reaffirm the important role** of image registration in the broader medical imaging community



Join SIGBIR

- 👤 We **always welcome new members to SIGBIR**, just send an email to [miccai.sigbir@gmail.com](mailto:miccaisigbir@gmail.com) to be invited to our next meeting or you can reach our president at mattias.heinrich@uni-luebeck.de
 We are immensely **thankful to the MICCAI society** for supporting us <https://miccai.org/index.php/special-interest-groups/bir/>

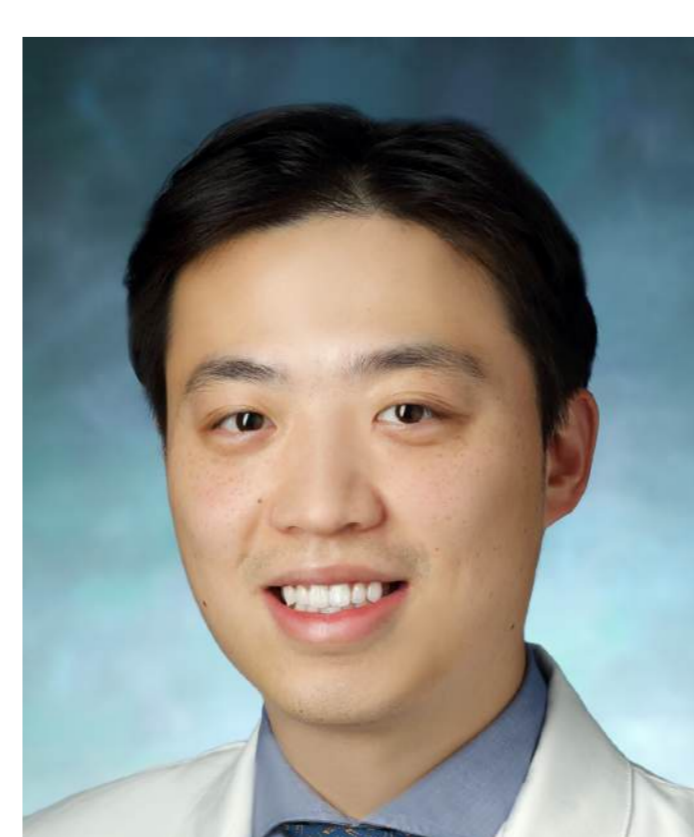
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