Hang Jung Ling, Postdoctoral researcher

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Employment History

2024 – · · · · **Postdoctoral researcher.** NTNU, Trondheim, Norway.

2024 – 2025 **Postdoctoral researcher.** CREATIS, Villeurbanne, France. (Funded by Inserm)
Summary : *Development of a web-based clinical GUI for automatic intracardiac blood-flow quantification in the left ventricle.*
Supervisors : Dr. Damien Garcia, Prof. Olivier Bernard, and MD-PhD Pierre-Yves Courand

2021 – 2021 **Student researcher.** CREATIS, Villeurbanne, France.
Final year project : *Development of an end-to-end 3D U-Net-based rib fracture detection algorithm on computed tomography (CT) images.*

Education

2021 – 2024 **Ph.D.**, CREATIS, INSA Lyon, France.
Thesis title : *Physics-guided neural networks for intraventricular vector flow mapping by color Doppler.*
Supervisors : Dr. Damien Garcia, Prof. Olivier Bernard ,and MD-PhD Pierre-Yves Courand

2020 – 2021 **M.Sc. Health Engineering - Medical Imaging, Signals and Systems**, Université Claude Bernard Lyon 1, France.

2018 – 2021 **M.Sc. (*Diplôme d'ingénieur*) Electrical Engineering**, INSA Lyon, France. (First Class Honours)

2016 – 2018 **Preparatory class, ASINSA**, INSA Lyon, France.

Research Publications

Journal Articles

1. **H. J. Ling**, S. Bru, J. Puig, F. Vixège, S. Mendez, F. Nicoud, P.-Y. Courand, O. Bernard, and D. Garcia, "Physics-Guided Neural Networks for Intraventricular Vector Flow Mapping", *IEEE Trans. Ultrason. Ferroelectr. Freq. Control*, vol. 71, no. 11, pp. 1377–1388, Nov. 2024. DOI: 10.1109/TUFFC.2024.3411718.

2. J. Puig, D. Friboulet, **H. J. Ling**, F. Varray, M. Mougharbel, J. Porée, J. Provost, D. Garcia, and F. Millioz, "Boosting Cardiac Color Doppler Frame Rates with Deep Learning", *IEEE Trans. Ultrason. Ferroelectr. Freq. Control*, vol. 71, no. 11, pp. 1540–1551, Nov. 2024. DOI: 10.1109/TUFFC.2024.3424549.

3. **H. J. Ling**, O. Bernard, N. Ducros, and D. Garcia, "Phase Unwrapping of Color Doppler Echocardiography using Deep Learning", *IEEE Trans. Ultrason. Ferroelectr. Freq. Control*, vol. 70, no. 8, pp. 810–820, Aug. 2023. DOI: 10.1109/TUFFC.2023.3289621.

Conference Proceedings

1. **H. J. Ling**, N. Painchaud, P.-Y. Courand, P.-M. Jodoin, D. Garcia, and O. Bernard, "Extraction of Volumetric Indices from Echocardiography: Which Deep Learning Solution for Clinical Use?", in *Functional Imaging and Modeling of the Heart*, 2023, pp. 245–254. DOI: 10.1007/978-3-031-35302-4_25.

Presentations

Oral

Sep. 2023 — Intraventricular Vector Flow Imaging using Physics-Informed Deep Learning
IEEE International Ultrasonics Symposium, Montreal, Canada

June 2023 — Intraventricular Vector Flow Imaging using Physics-Informed Deep Learning
Artimino Conference on Medical Ultrasound Technology, Artimino, Italy

— Extraction of volumetric indices from echocardiography—which deep learning solution for clinical use?
Functional Imaging and Modeling of the Heart, Lyon, France

Oct. 2022 — Dealiasing of color Doppler echocardiography using deep learning
IEEE International Ultrasonics Symposium, Venice, Italy

Poster

Mar. 2024 — Physics-Guided Neural Networks for Intraventricular Vector Flow Mapping
Colloque Français d'Intelligence Artificielle en Imagerie Biomédicale, Grenoble, France

Oct. 2022 — Reaching intra-observer variability in 2-D echocardiographic image segmentation with a simple U-Net architecture
IEEE International Ultrasonics Symposium, Venice, Italy

Skills

Languages — Chinese, English, Malay, and French.

Coding — C++, HTML/CSS, Java, Matlab, Python ,and PyTorch.

Miscellaneous Experience

Reviews

2025 – · · · · — **Reviewer**, IEEE Transactions on Medical Imaging.

2025 — **Reviewer**, Functional Imaging and Modeling of the Heart (FIMH) 2025.

2024 – · · · · — **Reviewer**, Computer Methods and Programs in Biomedicine.

2023 – · · · · — **Reviewer**, IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control.

Service and Volunteer

June 2023 — **Conference organizing committee**, Functional Imaging and Modeling of the Heart.

Apr. 2023 — **Summer school organizing committee & modérateur des sessions pratiques**, Deep Learning for Medical Imaging international summer school.

Honors and Awards

2025 — Best Ph.D. thesis award
French Society for Biological and Medical Engineering (SFGBM), France

2021 — 3-year scholarship for doctoral study
MEGA doctoral school (ED 162), INSA Lyon, France

2015 — 6-year scholarship for bachelor's and master's degree studies abroad
Public Service Department or Jabatan Perkhidmatan Awam (JPA), Malaysia

References

Dr. Damien Garcia
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