Arthur LONGUEFOSSE

+33-6-82-49-86-30 | arthur.longuefosse@gmail.com | https://phyrise.github.io/

in arthur-longuefosse | ⬡ phyrise

Bordeaux, France

OBJECTIVE

I am a third-year PhD student at the University of Bordeaux, currently working on lung MR to CT synthesis using deep learning, under the supervision of Pascal Desbarats and Fabien Baldacci. My interest also extends to various other deep learning applications within the realm of medical imaging (segmentation, classification, inpainting..). I am actively seeking postdoctoral opportunities starting in January 2025, aiming to contribute to cutting-edge research at the intersection of computational methods and clinical applications.

EDUCATION

• **PhD in Computer Science** _2021 - 2024_
Laboratoire Bordelais de Recherche en Informatique (LaBRI) Talence, France
  ◦ Deep learning for MR to CT translation in thoracic imaging

  ◦ Supervisors: Pascal Desbarats and Fabien Baldacci

• **Master's Degree in Computer Science** _2018 - 2020_
Université de Bordeaux Talence, France
  ◦ With high honors

• **Bachelor's Degree in Computer Science** _2015 - 2018_
Université de Bordeaux Talence, France

PUBLICATIONS C=CONFERENCE, J=JOURNAL, S=SUBMITTED

[J.1] Arthur Longuefosse, Julien Raoult, Ilyes Benlala, Baudouin Denis de Senneville, Thomas Benkert, Julie Macey, Stéphanie Bui, Patrick Berger, Gilbert Ferretti, Jean-Yves Gaubert, Renan Liberge, Antoine Hutt, Baptiste Morel, François Laurent, Fabien Baldacci, Gaël Dournes (2023). **Generating high-resolution synthetic CT from lung MRI with ultrashort echo times: initial evaluation in cystic fibrosis**. *Radiology*, 2023.

[C.1] Arthur Longuefosse, Edern Le Bot, Baudouin Denis De Senneville, François Laurent, Pascal Desbarats, Fabien Baldacci (2024). **Adapted nnU-Net: A Robust Baseline for Cross-Modality Synthesis and Medical Image Inpainting**. In *Proceedings of the MICCAI Workshop on Shape, Appearance, and Structural Health in Medical Imaging (SASHIMI)*, 2024.

[C.2] Arthur Longuefosse, Baudouin Denis De Senneville, Gaël Dournes, Ilyes Benlala, Fabien Baldacci, Pascal Desbarats (2024). **Incorporating 3D Information in 2.5D Networks: Strategies for MR to CT Synthesis**. In *Proceedings of the IEEE International Symposium on Biomedical Imaging (ISBI)*, 2024.

[C.3] Arthur Longuefosse, Baudouin Denis De Senneville, Gaël Dournes, Ilyes Benlala, Fabien Baldacci, Pascal Desbarats (2024). **On the use of perceptual loss for fine structure generation: Illustration on lung MR to CT synthesis**. In *Proceedings of the IEEE International Symposium on Biomedical Imaging (ISBI)*, 2024.

[C.4] Arthur Longuefosse, Baudouin Denis De Senneville, Gaël Dournes, Ilyes Benlala, François Laurent, Fabien Baldacci, Pascal Desbarats (2023). **MR to CT synthesis using GANs: a practical guide applied to thoracic imaging**. In *Proceedings of the 18th International Conference on Computer Vision Theory and Applications (IVAPP)*, 2023.

[C.5] Arthur Longuefosse, Gaël Dournes, Ilyes Benlala, Baudouin Denis De Senneville, François Laurent, Pascal Desbarats, Fabien Baldacci (2023). **Lung CT Synthesis Using GANs with Conditional Normalization on Registered Ultrashort Echo-Time MRI**. In *Proceedings of the IEEE International Symposium on Biomedical Imaging (ISBI)*, 2023.

[S.1] Arthur Longuefosse, Baudouin Denis De Senneville, Gaël Dournes, Ilyes Benlala, Fabien Baldacci, Pascal Desbarats (2024). **Anatomical feature-prioritized loss for enhanced MR to CT translation**. Manuscript submitted for publication in *Computers in Biology and Medicine*, 2024.

SKILLS

• **Programming Languages:** Python (Advanced), C++ (Intermediate)
• **Deep Learning Frameworks:** PyTorch (Advanced), TensorFlow (Intermediate)
• **Machine Learning:** CNNs, GANs, Diffusion models
• **Medical Imaging:** MRI, CT, image synthesis, image inpainting, image segmentation
• **Tools and Technologies:** Git, Docker, Jupyter, DICOM
• **Research Skills:** Scientific writing, data and statistical analysis, experimental design, collaborative research

Teaching Experience

• **Introduction to Computer Science**   *2021 - 2023*
Lecturer

- Taught first-year Bachelor degree students fundamental concepts in computer science.
- Delivered practical sessions on Python programming, covering variables, data types, control structures, functions, and basic algorithms.
- Assisted in preparing lectures, assignments, and examinations.
- Provided support to students during office hours and tutorials, guiding them through coding exercises and debugging.

• **Perception & Interaction**   *2023 - 2024*
Lecturer

- Delivered lectures and practical sessions for the second year of Master ASPIC program.
- Covered key topics including image processing, SLAM, and introduction to deep learning.
- Guided students through practical projects using OpenCV and PyTorch for tasks like lane detection, stereo vision, and deep learning-based image analysis.
- Evaluated student performance through assignments, hands-on labs, and project presentations.

• **Internship Supervision**   *2021 - 2023*
Supervisor

- Supervised and assessed Master 2 research trainees.
- Guided preparation and correction of dissertations and oral presentations.

Additional Information

Languages: French (Native), English (C1), Spanish (B1)
Interests: Badminton, hiking, reading, music, board games, video games, trading card games (TCG).

References

1. **Pascal DESBARATS**
   Professor, Department of Computer Science
   LaBRI, Université de Bordeaux
   pascal.desbarats@labri.fr
   Thesis Supervisor

2. **Fabien BALDACCI**
   Associate Professor, Department of Computer Science
   LaBRI, Université de Bordeaux
   fabien.baldacci@labri.fr
   Thesis Supervisor

3. **Baudouin DENIS DE SENNEVILLE**
   Research Director
   CNRS, Institut de Mathématiques de Bordeaux
   b.desenneville@gmail.com
   Research Collaborator

4. **Gaël DOURNES**
   Professor of Radiology
   Hospital Center of Bordeaux
   gael.dournes@u-bordeaux.fr
   Research Collaborator