

Ph.D. research topic

- Title: **Statistical Learning for multimodal registration medical images**
 - Research axis of the 3iA: AI for Computational Medicine (Axis 2)
 - **Supervisor: Nicholas Ayache (Inria, nicholas.ayache@inria.fr)**
 - co-supervisor: **Hervé Delingette**: herve.delingette@inria.fr
 - The research group: Project-Team **Epione** at **Inria Sophia Antipolis**.
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Apply by sending an email directly to the supervisor and co-supervisor.

The application will include:

- **Letter of recommendation of the supervisor indicated above**
 - Curriculum vitæ.
 - Motivation Letter.
 - Academic transcripts of a master's degree(s) or equivalent.
 - At least, one letter of recommendation.
 - Internship report, if possible.
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- **Short description of the topic:**

The objective of this PhD is to extend the PhD thesis of Julian Krebs (reference below) to address the probabilistic registration of medical images of different modalities. In particular, we plan to address the difficult problem of registration of pre-intervention MR images of an organ with intra-intervention ultrasound images of the same organ, in order to better guide some interventions. The challenge associated with this objective is to jointly learn the spatial transformation and the intensity mapping between images within a variational autoencoder. One major application will be for image-guided prostate cancer therapy.

[Julian Krebs](#). **Robust Medical Image Registration and Motion Modeling based on Machine Learning**. PhD Thesis manuscript,
Université Côte d'Azur, France ; INRIA Sophia Antipolis, France, June 2020.
Available at <https://www-sop.inria.fr/asclepios/biblio/Author/KREBS-J.html>