



Internship: Image Processing for Medical Imaging

echOpen factory is medical imaging and AI-based technology startup that develops, manufactures and deploys an ultra-affordable ultra-portable tri-frequency ultrasound imaging system, based on a probe connected to any smartphone or tablet. This system is dedicated to diagnostic orientation: the “stethoscope” of the 21st century. This essential tool in the primary care of patients, offers additional services and employs artificial intelligence. After 5 years of R&D and an industrialization phase, echOpen is preparing to put its solution on the market. Today, echOpen has a team of 15 people, supported by leading partners, both leaders in the world of health (AP-HP, Institut Pasteur, Sano, etc.) and technological and industrial (Capgemini group, EPFL, etc.).

Linkedin: <https://www.linkedin.com/company/echopen-factory/>

Page Web: <https://www.echopenfactory.com>

Objectives

The objective of this internship is to contribute to the development of ultrasound image processing methods in order to enhance the quality of our ultrasound images to be added on our image processing chain on the mobile application.

This covers multiple technical topics like:

- Which processing contributes to denoising our images taking in account specific information from our probe hardware and Firmware and constraints related to its implementation on mobile.
- Exploration of temporal filters, by aggregating multiple consecutive images to better denoise our images.
- Exploration of deconvolution techniques that aggregate the information from multiple “lines” using information from our probe’s transducers to enhance the resolution of our ultrasound images .

The intern will work together with:

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- The technical team developing the products (Acoustics, Electronics, Signal Processing, Mobile development, AI)
- Medical doctors for the assessment of image processing methods.

Skills

- Current master student, with signal and image processing experience (internships, school projects, summer school, personal project, ...).
- Experience in C++, Python/Matlab and opencv,
- Experience in these topics is not required but would be a bonus: medical imaging, deconvolution methods, on device computing, mobile development, ITK library, ultrasound signal processing, deep learning

We are actively seeking diverse profiles, and will pay special attention to any personal hands-on experiences or projects.

Supervision

This internship would be co-supervised by **echOpen factory**, and Pr. **Thomas Rodet**, Signal Processing Professor at Ecole Normale Supérieure Paris Saclay.

Practical information

- Duration: 6 month internship.
- Location: echOpen office is in the Hotel Dieu - AP-HP hôpital, on the Ile de la Cité (Paris 4th)
- Remuneration: depends on the candidate's profile and experience.

CONTACT : Send CV and cover letter to

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