# Internship: Signal 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, Sanofi, etc.) and technological and industrial (Capgemini group, EPFL, etc.).
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## Objectives

The objective of this internship is to contribute to the development of ultrasound signal processing methods in order to enhance the quality of our "raw images" to be added on our signal processing chain in the HW system.

This covers multiple technical topics like:
- Which processing could contribute to denoise our signals taking into account specific information from our probe hardware and Firmware and constraints related to its implementation on the HW architecture.
- Exploration of spatial and temporal filters, by aggregating multiple consecutive lines to better denoise our raw image.

The intern will work together with:
- The technical team developing the products (Acoustics, Electronics, Signal Processing, Mobile development, AI, FPGA)
- Medical doctors for the assessment of image processing methods.

## Skills

- Current master student, with signal and image processing and embedded systems experience (internships, school projects, summer school, personal project, ...).
- Experience in C++, Python/Matlab and opencv,
- Experience in Co-design, FPGA, HW architecture
- 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,

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

# Practical information

- Duration: 6 month internship.
- Place: 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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