Sigmascreening B.V.
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www.sigmascreening.com

12 – 30 week project for student of technology / engineering / arts:

Mammography research – flexible breast phantoms

Background

Sigmascreening is an innovation company in mammography (breast x-ray photo). For good quality x-ray photos without blurring, the breast needs to be immobilized. Many people consider this "compression" quite painful, particularly women with smaller breasts. Normal mammography machines only display the compression force, but using the same force for a large or small breast results in very different pressures (force per square centimetre). Our Sensitive Sigma Paddle measures the contact area of the compression plate with the breast and calculates the mean pressure. With 8 LEDs as a display, the technician is guided to apply the same level of pressure – corresponding to normal blood pressure - for all different sizes and shapes of breast. This has been proven to reduce pain experience without loss of image quality. In R&D, Sigmascreening collaborates with the Bioengineering and medical Physics department of the Amsterdam UMC (Location AMC).

Project

For ongoing mammography research, Sigmascreening is in need of a set of flexible breast phantoms to use for experiments on a mammography research setup. The set of breast phantoms should represent a range of actual breast shapes that can either be rendered from an existing breast model (available from literature), or that can be recorded with a 3D scanner (not yet available). In the set of breast phantoms there should be differences in firmness inside the breast, which can be constructed via 3D printing, silicone moulding or another 3D sculpting technique.

Profile

Student of technology or engineering (mechanical, physics, electrical, computer)
Or: Student or arts (sculpting, 3D photography, computer modelling)

- Proven: experience with 3D printing, silicone moulding or other 3D sculpting technique
- Proven: experience with 3D modelling in Blender or another mesh-based program
- Ideally: experience with (structured light) 3D scanning
- Able to work in a team, verbally present ideas & results and write a comprehensive report

Scope

Suitable as an internship or Master thesis-project of a minimum of 12 weeks (can be extended to include more tasks up to a project of 30 weeks)

Contact

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