Internship description: Breast cancer is the most frequently diagnosed solid cancer and second leading cause of cancer death among women. In most countries all the women beginning from a certain age should pass a mammography exam to detect the cancer as early as possible. Whereas this demands a large number of radiologists to analyze all the images, a lot of countries are missing experienced breast radiologists.

Therapixel is a spin-off Inria created in 2013 specialized in medical imaging with 10 employees. It has recently win the Digital Mammography DREAM Challenge [1,2], a world-wide competition organized to improve the state-of-the-art in automatic mammography screening. This internship will explore Faster R-CNN [3] based approaches to further improve the results. The starting point of this internship will be the 2nd position of the DREAM Challenge [5]. Using Tensorflow implementation [4] as the starting point, the goal is to reproduce and improve the results by testing several extensions:

- Improving the architecture/training procedure
- multi-gpu training
- more data, more detailed labeling
- attention mechanism

The intern is highly encouraged to take initiatives, to propose and test new ideas.

Candidate description:

- Motivated by medical challenges
- Good understanding of modern Deep Learning architectures (AlexNet, VGG, ResNet)
- Some experience with at least one Deep Learning framework (ideally Tensorflow)
- Good coding skills (Python / C++ / C)
- Familiar with standard Python libs (Numpy, Scipy, matplotlib)
- High general scientific culture and research spirit
Modalities:

- Internship length: 6 months
- Internship location: Paris, RER station Port Royal (pépinière Paris Santé-Cochin)
- Salary: 2000 € net / month
- Contact e-mail: stage-dl@therapixel.com

Note that this internship could lead to a research scientist position at Therapixel and/or a PhD in partnership with a French Research Institute.

Please include your resume, motivation letter, and grades obtained so far.

Join Therapixel – help in building the medicine of the future

References:


