

PhD position on Silicon photonics neuromorphic computing for cell sorting applications

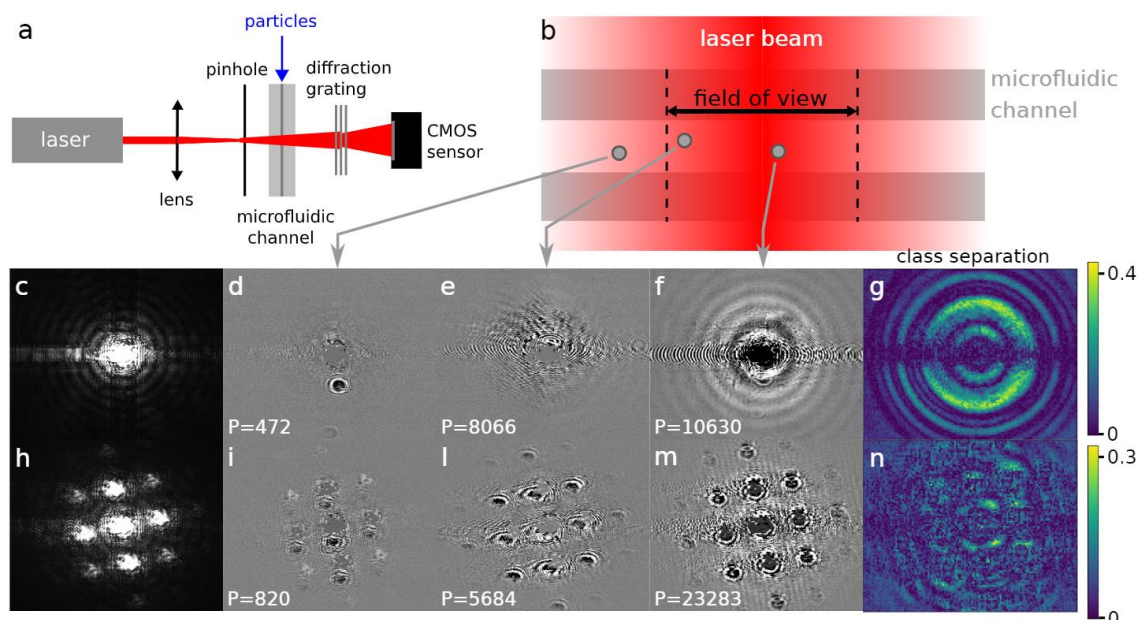
Ghent University – IMEC, Photonics Research Group
Tech Lane Ghent Science Park – Campus A
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We are looking for highly motivated PhD candidates with both a strong background in photonics and with prior exposure to machine learning, to do research into photonics reservoir computing, an exciting new paradigm of photonics information processing.

Reservoir computing is a methodology from the field of machine learning and neural networks, which has been used successfully in several pattern classification problems, like speech and image recognition. However, so far it has been mainly used in a software implementation, which limits its speed and power efficiency. Thanks to our previous work (Vandoorne et al., Nature Communications 5 3541, 2014) we have shown that silicon photonics could provide an excellent platform for such a hardware implementation.

Recently, we have been building ever more complex systems, and expanding this approach to a variety of other applications, including the identification of different types of biological cells (e.g. distinguishing different sizes of cells, distinguishing cancer cells from non-cancer cells, ...) (Lugnan et al., Opt. Express, 25, 24, 30526, 2017).



In the context of the European ITN training network **PostDigital**, we are looking for motivated PhD students to help bring this research forward. The training network could also involve stays at other European labs.

We offer you the opportunity to perform cutting-edge, blue-sky research, in a challenging, motivating environment, working within a multidisciplinary team consisting of both photonics people and computer scientists. A willingness to tackle challenges coming from these multidisciplinary collaborations is a must.

Contact: Peter.Bienstman@imec.be Submissions close on October 1st 2020.