REMOTE SENSING USING SENSOR ARRAYS

Promotor(s)

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http://www.etrovub.be/education/master/master-thesis-topics-guidelines/thesis-details/overview/

Context

Sensors arrays are been widely adopted for multiple applications, from arrays of cameras on smartphones, non-invasive sensor arrays for patient monitoring [1] or bringing new applications [2]. The proper combination of the gathered data is, however, not fully exploited. Moreover, the use of AI to exploit the acquired data from sensor arrays is not widely adopted (yet).

Research activities and goals

This thesis intends to evaluate existing data fusion techniques, combined with AI, for homogeneous and heterogeneous sensor arrays. Different applications related to non-invasive physiological monitoring and remote sensing will be used to evaluate and exploit these techniques.

Kind of Work:

- Literature study of existing solutions and their limitations.
- Evaluation of the most interesting solutions exploiting the additional data from the sensor array
- Interface the sensor array and embed the data fusion

Expected student profile:

- Interest in embedded systems and AI.
- Experience with Python and/or C/C++.

References and further reading

[1] Lin, Feng, et al. "Smart insole: A wearable sensor device for unobtrusive gait monitoring in daily life." IEEE Transactions on Industrial Informatics 12.6 (2016): 2281-2291.

[2] da Silva, Bruno, et al. "A Multimode SoC FPGA-based acoustic camera for wireless sensor networks." 2018 13th International Symposium on Reconfigurable Communication-centric Systems-on-Chip (ReCoSoC). IEEE, 2018.