

Bachelor's/ Master's Thesis:

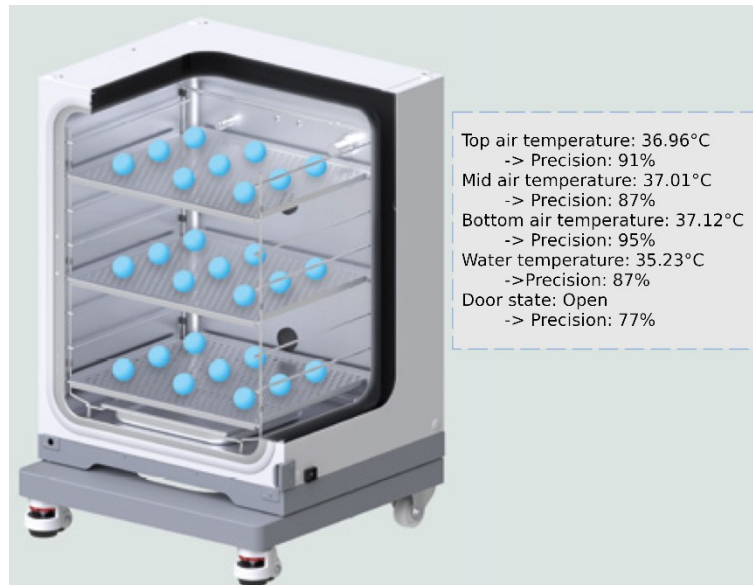
Design and Evaluation of a Sensor Fusion Algorithm using Modern Machine Learning Techniques to Determine the Air Temperature inside a CO2 Incubator

We are

a market leading life-science device manufacturer located in Hamburg – the Eppendorf Instrumente GmbH. We produce devices and solutions for cell, liquid and sample handling. With the CellXpert we introduced our new incubator product series. Disinfection and cleaning have a high priority on these devices. Hence to make this process as easy as possible for our customers, we decided to forgo the air temperature sensor.

We offer

thesis based challenges where you will develop a sensor fusion algorithm to determine the air temperature inside the incubator using Sensor Fusion. The identification of a suitable approach (classical machine learning or deep learning techniques) is part of your topic. Furthermore, you will benchmark your approach against our current implementation. Because these models should run on an embedded platform, low hardware requirements as well as low error rates at the same time are required.



We require

you to have programming skills with Python 3 and at least some experience with machine learning frameworks like Keras or SciKit-Learn. Interest in machine learning, control and statistics.

We provide

- > A full functioning CellXpert C170 Incubator for your tests.
- > Remote control interface to the C170 (Python, C++, C#).
- > A high accuracy air temperature sensor kit for data generation.
- > An extendable machine learning pipeline.
- > A special machine learning server with 52 real cores, 1TB RAM and 5x Tesla V100 GPUs.
- > Experience in supervising Bachelor's and Master's Thesis.

Philipp Kayser
kayser.p@eppendorf.de

Marc Bestmann
bestmann@informatik.uni-
hamburg.de

Jannis Hagenah
hagenah@rob.uni-luebeck.de