Internship at the Singapore ETH Centre

Title: Machine learning for smart insect rearing for urban food waste management
Supervision: Dr. Moritz GOLD, Adrian FUHRMANN

About us
The Sustainable Food Processing Group investigates alternative protein production to target fundamental challenges in food science and society including food waste management and sustainable production of feed and fertilizers for local food production.

Project background
As part of a 3-year research project funded by the National Research Foundation (NRF) Singapore, we are working together with NUS, NTU and private partners on food waste recycling with larvae of the black soldier fly (BSF) in the urban environment (see details here and here). The larvae can feed on a wide variety of organic side-streams. The resulting larval biomass is a valuable protein feed and the remaining residue a valuable fertilizer. We focus on tailoring the insect-based bioconversion process to the space-limited urban environment. The key challenge of the process is variability due to the compositional heterogeneity between batches of food waste that is given to the larvae.

Aims and scope
Our established experimental rearing platform generates comprehensive, process specific time-dependent data, e.g. temperature, relative, humidity gaseous emissions (30 data points per minute, 60 sensors). On that ground, a real-time process control scheme for the rearing process based on a machine learning model is to be developed and tested.

Tasks

Project duration
6 months starting as soon as possible, e.g August-September 2023 – sooner for holders of Singapore employment pass. The student is expected to work fulltime in Singapore.

Your skillset
You have profound experience in the development of machine learning based process control for time-related processes. Excellent organizational skills, good communication and writing skills, good English proficiency, reliability, competence in working independently as well as in a team. Previous experience in fields related to sustainability and biology is a plus.

What we offer
You will be working with one of the leading research teams globally on black soldier fly larvae bioconversion and on solutions to reduce the environmental impact of food production while providing save waste management that safeguards environmental and public health. You will be provided with a unique data set consisting of > 2 Mio. data points and work with state-of-the art research equipment. Overall, this internship in Singapore, a global hub for machine learning, offers opportunities for learning, scientific discovery, and personal development. Living expenses will be supported with a monthly stipend. If required, our HR department will support with visa application.

Interested? Contact us with CV, matriculation confirmation, and transcript of records.
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The application is open for all nationalities, Student status is a requirement.