[ITI41120 Applied Computer Science Project](https://www.hiof.no/english/studies/courses/iio/itk/2022/spring/iti41120.html)

Spring 2023

**Topic**: Re-enforcing Research on Applying Machine Learning for Mechanical Production

**Research areas involved:** Cyber-Physical systems and Machine Learning

**Skills needed:** Programming skills, interest in robotics / production, basic machine learning, basic cyber-physical competence

**Number of students needed:** 2

**Contact:** Øystein Haugen ( oystein.haugen@hiof.no )

**Content:** This project will work with Mechanical Solutions in Halden and our PhD student Hoa Nguyen to re-enforce the results achieved from a proof-of-concept project. The project collects sensor data from an industrial CNC machine and builds Machine Learning models to model the machine operators’ experiences for the future productivity increase.

Our aim is to give the operators adequate guidance in real-time. Even though initial experiments are promising, there are several parameters that need to be explored. This project will repeat the experience-synthesizing experiment on new product series and try and generalize the knowledge base. Eventually, the project should try and improve the techniques for better and longer predictions.

Diagram

Description automatically generated

Some references:

1. <https://astromachineworks.com/what-is-cnc-machining/>
2. <https://msh-mechanical-solutions.business.site/>
3. Synthesizing Operator Experiences for a Real-time CNC Machine Controller using Machine Learning (Draft paper will be made available)