Master Thesis:
The Artificial Engineer
- Automation of PCB layout

Background:
When an electronic product is to be made, a circuit diagram is drawn, which describes the logic, i.e. what components to include and how these should be connected. This information is then used in the development of a PCB (Printed Circuit Board) layout, where the physical design, i.e. board outline, attachment points, placement of the components and how traces and powerplanes are to be formed to achieve desirable electrical properties. This is still today largely a manual task, i.e. the engineer must do it using a CAD program, which takes time and resources. In addition to that there is the risk of costly mistakes and negligence due to stress.

Goal:
The goal of this master thesis is to as far as possible develop a module for component placement. The module shall be capable of, given a board outline, components and design rules, create an optimized component placement, i.e. floorplan.
It shall be designed to be independent of what CAD program is used.
However, during the thesis work we will be using Mentor Graphics PADS.

The thesis work will include:
- Evaluation and choice of algorithms.
- Design and implementation of module for component placement.
- Test and validation of the module.

Profile:
We are looking for two students with good knowledge in programming, preferably with special knowledge of machine learning. Knowledge in electronics is an advantage. Good knowledge of Python programming is an advantage. Experience with TensorFlow is an advantage.

Location: Department of Electro and Information Technology, LTH
Start: Immidiately
Compensation: To be discussed

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