



Subjects for projects/final thesis for incoming students at HSU – Spring 2018

Supervisor	Prof. Dr. Walter Commerell
Institute/Department	Production Engineering and Production Management
Mail address	commerell@hs-ulm.de
Research field/project	Storage Systems
Maximum number of students, who could work on the project	3
Practical training / Bachelor Thesis / Master Thesis	all
Compulsory Qualification of students	Engineering (Electrical, Mechanical, Thermal) Background
Date of stay (from-to)	<input checked="" type="checkbox"/> March 1 st - <input checked="" type="checkbox"/> June 30 th <input checked="" type="checkbox"/> April 1 st - <input checked="" type="checkbox"/> July 31 st
Description	In the project different simulation models of energy storages within their application should be realized. Energy storages can be batteries, fly-wheels, compressed air systems, hydro pump stations etc. As description language Modelica is used with simulators as OpenModelica or Dymola. The project can focus on a subset of storage technologies modelled with different levels of detail. The models should be validated and tested within an application.
Further comments	Lab infrastructure with simulation tools, and validation equipment of some technologies are available.

Supervisor	Prof. Dr. Ralf Otte
Mail address	otte@hs-ulm.de
Research field/project	Artificial Intelligence
Maximum number of students, who could work on the project	2 + 2
Practical training / Bachelor Thesis / Master Thesis	Master Thesis
Compulsory Qualification of students	Lectures in AI, neural networks, mathematic, software coding (Matlab)
Date of stay (from-to)	<input type="checkbox"/> March 1 st - <input type="checkbox"/> June 30 th <input checked="" type="checkbox"/> April 1 st - <input checked="" type="checkbox"/> July 31 st
Description	Research on AI and Development of algorithms for Weak Data. Today all deep learning algorithms work on mass of data (called Big Data approach). But there are a lot of applications with extremely weak data (e.g. crash predictions). For this

**Subjects for projects/final thesis for
incoming students at HSU – Spring 2018**



	applications AI approaches (neural networks) have to be checked and developed.
Further comments	The software coding will be done in Matlab. Students have to understand the mathematics of complex numbers, computer learning algorithms based on data (called data mining) and should understand the idea of neural networks, esp. Backpropagation and Self organizing maps.