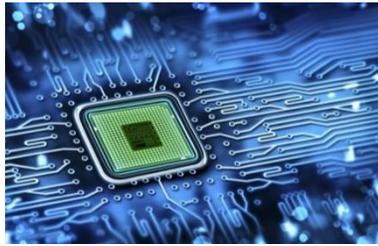




PASSION. PRECISION. PURITY.



INTERNSHIP / MASTER THESIS

Advanced Control Algorithm for the Fast Pressure Control of Vacuum Processes

Are you looking for an opportunity to write your thesis in an industrial environment or obtain valuable industry experience, during or after your technical education? Here is one of many interesting topics we have on offer. We are also very open to your own ideas in order to create a matching opportunity for you at VAT.

Innovation has always been the driving force at VAT since the company was founded over 50 years ago. This has made us the world leader in vacuum valves and vacuum sealing technology. This pioneering spirit motivates us daily to meet our customers' requirements with enthusiasm. Together with our employees we stand for passion, innovation and quality. VAT is headquartered in Haag (Switzerland) and employs approximately 2 000 people worldwide. It has production centers in Haag (Switzerland), Penang (Malaysia) and Arad (Romania) as well as a production facility in Xinwu (Taiwan). With our customers mainly being situated in the United States and Asia, this provides a great opportunity to start an international career.

What you will explore:

Very demanding production processes in the high-tech semiconductor industry require 'razor sharp' controlled process conditions in the vacuum chamber to ensure a consistent quality of the products such as Microcontrollers, GPUs and 3D memories. Dynamically changing gas flows and gas types (for example in ALD, atomic layer deposition) in addition to the wide variety of chamber setups and plasma ignition during the process represent a challenging task for the precise control of the chamber pressure. The goal of the work is to improve the current control technology with new features and algorithms to deal with upcoming challenges of the new processes required at 5nm and 3nm technology nodes.

Possible work packages are:

- Build up the test set up to assess the performance of the pressure controller under critical process conditions
- Ideas & research to improve the existing control algorithm in terms of speed, disturbance rejection and robustness
- Development of advanced control algorithm based on the machine learning techniques for fast repeating processes
- Testing and verification of the developed control algorithms on a dedicated vacuum test bench

What you will need:

- Theoretical Background in mechanical, electrical engineering or similar,
- Strong Skills & Knowledge in control algorithms and system modelling,
- Programming skills in Matlab & Simulink

Are You Ready for the Challenge?

Then we look forward to receiving your **electronic application sent to Dominic Mayrhofer.**

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