Master Thesis Project

Additive Manufacturing and Post Processing of Surface Textures

Background
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Department of Industrial and Materials Science is hosting the competence center “Centre for additive manufacturing – metal (CAM$^2$)” that involves broad network of national and international companies. Project will be done in collaboration between ABB corporate research in Västerås and IMS at Chalmers in the frame of CAM$^2$.

Description of the thesis work
Additive manufacturing opens up for many new exciting functionalities that can hardly be achieved by conventional manufacturing techniques.

The present master thesis is focused on design, synthesis and evaluation of surface textures of metallic components. The overall goal is to understand how these features can improve ABB products in two already identified applications.

In a first step, the work will consist in a survey of different textures able to improve given properties for the different applications.

The most promising concepts will then be printed in polymer for experimental evaluation and finally with Selective Laser Melting for further investigation of the metallic part.

The second step of the thesis should address the post processing of such metallic structures. The as-printed surface of the AM component might be unacceptable for certain applications and should have an extra surface treatment. The work will provide a comparison of the most promising post-processing techniques with regard to performance and cost.

Finally, the thesis should provide general guidelines on how to produce and finish these surface textures in the best way and demonstrate their added values.

Requirements:
We are looking for a master student with a profile towards material science. A solid background in additive manufacturing is an advantage.

**Extent and time plan:**
- Period (January-June 2019)
- Number of credits 30 ECTS/högskolepoäng(hp).
- The thesis is intended for one student

**More information:**

Recruiting Manager Santanu Singha, +46 21-34 51 72, will answer your questions. Union representatives - Sveriges Ingenjörer: Ulf Westblom +46 21 32 30 68. Unionen: Krista Andersson, +46 21- 34 02 85. Ledarna: Lenny Larsson +46 21-32 85 47. All other questions can be directed to Terese Björklund, + 46 21-32 80 75. Positions are filled continuously. Apply with your CV, academic transcripts and a cover letter in English

Welcome to apply!

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**Supervisors and examiners:**

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