**Master Thesis Proposal**

**Insect classification based on Stereo vision**

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| **Overview** |

The proposed master thesis is collaborations between Bolin Nordic AB and its partners (Plant protection and quarantine bureau of Zhejiang province) in the 3D image processing project. The project aims for developing a advanced real-time surveillance system applied in farm field allowing early infestations detection in crops. The benefits from the application of such surveillance system can be huge both from an economic and an ecological point of view by

* Allowing cost-effective pest control
* Reducing losses in crops caused by infestations

An effective of algorithm of real-time image processing for object segmentation, recognition and classification is required. The algorithm should recognize different insects species based on stereo vision system. Regarding the insect recognition part of the surveillance tool, a consequent work has been done, that is the 3D model of the insect which is used for matching the characteristics extracted from the insect image. These mainly concern intelligent motion detection --to optimize the camera network performance--, classification of detected objects, and their tracking between frames.

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| **Key tasks** |

The efficiency of the surveillance tool relies heavily on the capabilities of the detection system to classify each object into the appropriated class. The key tasks of this thesis include:

* Image processing algorithm investigation.
* Matlab simulation.

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| **Prerequisite** |

The successful candidate must be a Masters student in computer science and/or applied mathematics.

* Good knowledge in Digital image processing/machine vision.
* Good skill in Matlab programming.
* Good team work.
* Some knowledge of other programming language (Java, C\C++) is preferred.

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| **Location** |

Gothenburg, Sweden.

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| **Duration and Supervisors** |

5 to 6 months (starting around January 2014)

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| **Additional information** |

For questions regarding technical issues in cases where the description is vague, please contact Bo Yu at +46 70 779 3366.

Please send your application with CV and university transcript to bo.yu@bolinnordic.com.