UPPSALA
UNIVERSITET

**Teknisk- naturvetenskaplig fakultet**
**UTH-enheten**

Besöksadress:
Ångströmlaboratoriet
Lägerhyddsvägen 1
Hus 4, Plan 0

Postadress:
Box 536
751 21 Uppsala

Telefon:
018 – 471 30 03

Telefax:
018 – 471 30 00

Hemsida:
http://www.teknat.uu.se/student

# Abstract

## Convolutional neural networks for classification of transmission electron microscopy imagery

*Sergii Gryshkevych*

One of Vironova's electron microscopy services is to classify type of liposomes. This includes determining structure of a liposome and presence of a liposomal encapsulation. Vironova has a lot of electron microscopy images so automatic classification is of great interest. The purpose of this project is to evaluate convolutional neural networks method for solving lamellarity and encapsulation classification problems. Available data sets are imbalanced so a number of techniques to overcome this problem are studied. The convolutional neural network models have reasonable performance and offer great flexibility, so they can be an alternative to support vector machines method which currently performs automatic classification tasks.

Handledare: Max Pihlström
Ämnesgranskare: Ida-Maria Sintorn
Examinator: XXXX
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