

# Sequencing technologies to study the pollination services of *Apis mellifera* in apple orchards

A dissertation submitted by

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## Thesis abstract

To understand the mechanisms underlying pollinator-dependent plant reproduction in cultivated landscapes, we need an in-depth knowledge of fine-scale interactions between insects and flowering plants. The advent of high-resolution molecular techniques, such as DNA/RNA sequencing, have facilitated the plight of pollination ecologists to track pollen movement between flowers by insects. This thesis aims to progress this knowledge by investigating cultivar pollen carried by honeybees in apple orchards to (i) investigate the use of transcriptome analyses as a novel molecular metric to evaluate pollinator effectiveness; (ii) examine the gene expression response to honeybee flower visits; (iii) generate molecular markers for different apple cultivars, and (iv) examine the microbiome communities related to pollination by metagenomics approaches.