



OSTBAYERISCHE  
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REGENSBURG

# **Building Domain Specific Languages and Polyglot Applications with GraalVM**

Presented to the Faculty of Computer Science and Mathematics  
University of Applied Sciences Regensburg  
Study Programme:  
Master Computer Science

## **Master Thesis**

In Partial Fulfillment of the Requirements for the Degree of  
Master of Science (M.Sc.)

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**Submission Date:** ??

# THESIS DECLARATION

## ABSTRACT

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# 1 Introduction

Business as usual

## 2 Overview of GraalVM

### 2.1 Motivation

Why do we need Graal?

### 2.2 Features

#### 2.2.1 GraalVM Compiler

Explanation and some benchmarks

#### 2.2.2 Native Images

Explanation and some benchmarks yet again

#### 2.2.3 Truffle Framework

Basic explanations: why is there a truffle framework and what is achievable

#### 2.2.4 Polyglot Applications

Basic explanations: what's possible here

## 3 Domain Specific Languages in GraalVM

### 3.1 Technical Overview

How to build DSLs with GraalVM?

### 3.2 <INSERT NAME OF DSL>

Introduce the DSL of this thesis here 1 2 3 4 5

$$A = \{ x \mid x \in (A \cap B) \} 12345 \quad (1)$$

### 3.3 Implementation of <INSERT NAME OF DSL>

Highlight some key aspects of implementation

### 3.4 Evaluation

Evaluate the DSL and GraalVM, highlight pain points etc.

## **4 Integration of Domain Specific Languages**

### **4.1 Technical Overview**

How do polyglot applications technically work?

### **4.2 Integration of <INSERT NAME OF DSL>**

Showcase how it's done using the thesis DSL

### **4.3 Evaluation**

Evaluation how good this actually works



## 5 Conclusion

Business as usual