

Introduction to LLVM compiler framework

Course outline

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Welcome slides

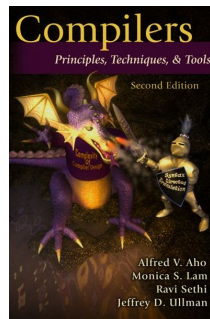
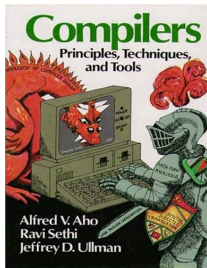


About the dragon

- The LLVM logo [1] is a stylized wyvern (a kind of dragon). Dragons have connotations of power, speed and intelligence, and can also be sleek, elegant, and modular (err, maybe not).

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Dragons have connotations of power, speed and intelligence, and can also be sleek, elegant, and modular (err, maybe not).
- There is a series of compiler books dating back to the 1970s showing illustrations with dragons and knights [2] [3] [4]



About me

Stefano Cherubin

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- 1st year PhD student @ Politecnico di Milano (Italy)
- working on compilers since a few months ago
- definitely not an experienced knight...

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- ...I'm more like a lazy Hobbit



About you

In order to fully understand the content of this course you should have:

- knowledge of what a compiler is
- proficiency in most common data structures
- proficiency in Object-Oriented Programming
- at least some experience with C++

About the course

1 First part

- Compiler design
- LLVM structure overview
- LLVM-IR language

2 Second part

- Available middle-end passes (overview)
 - Normalization
 - Analysis
- LLVM quick start tutorial

Goal of the course

At the end of these lectures you should:

- understand the LLVM compiler infrastructure
- be able to read a .ll file (LLVM-IR)
- know where to look for documentation
- know which are the main middle-end weapons LLVM provides you out of the box
- know how to implement a simple analysis / transformation
- know how to test your code

Bibliography I



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