

# Bachelor Project in Compiler Construction

“the pizza meeting”

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# Compiler Construction Formalities

- the default Computer Science Bachelor Project
- in the spring semester:
  - runs late January to late May
  - followed by exam, usually very late May or early June
- concurrent with DM546 - Compiler Construction (prerequisite)
- ideally working in groups of three
- the project is organized in four parts with individual deadlines
- at the last deadline, the final bachelor report is turned in
- an oral exam as an individual defense of the group project
- compulsory core + individualization

# Overall Project Structure



- define programming language
- write compiler (in C)
- lots of programming
- increasingly interesting topics to work on – for large enough group

# Compiler Construction Language

- basic types: integer and boolean
- operators on basic types
- composite types: sequencing and grouping
- control structures: conditional, iteration
- structuring: functions and static nested scope
- references and heap
- extras:
  - register allocation
  - garbage collection
  - peep-hole optimization
  - class hierarchy & objects
  - and many many more...

# Compiler Construction Organization

## Typical Parts

- 1 symbol table
- 2 scanning & parsing
- 3 type checking
- 4 code generation & optimization (+ 1, 2, and 3)

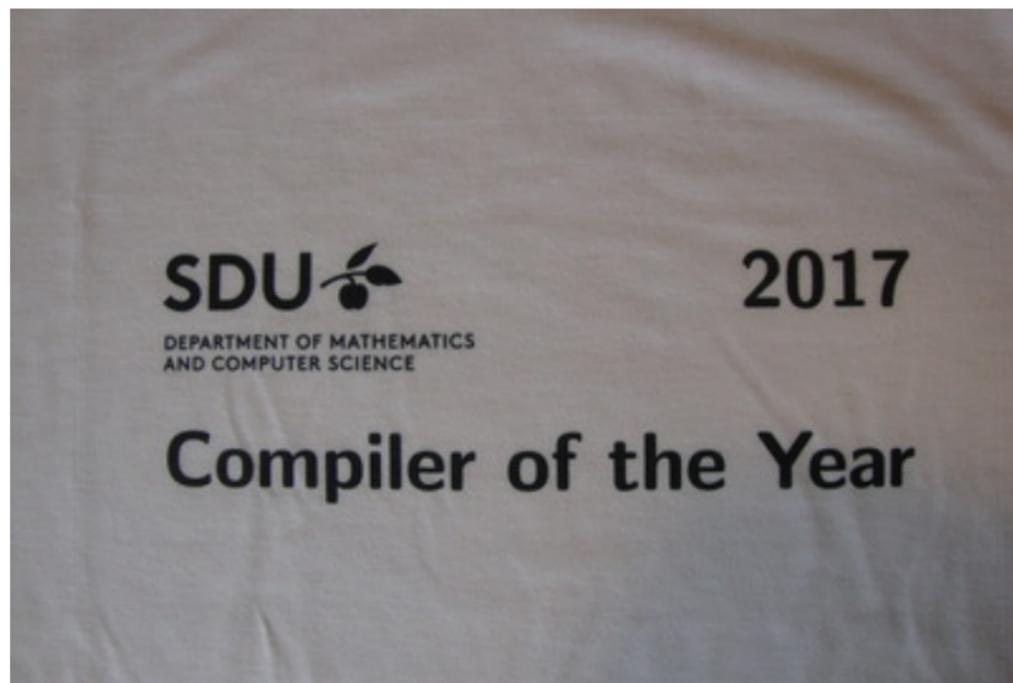
# Advertising Compiler Construction

## Very useful!

- Programming languages, query languages, specification languages, ...
- Tools: html, XML,  $\text{\LaTeX}$ , postscript, ...
- Data/format conversions and interfacing
- Industry: Large companies typically maintain a collection of domain-specific production compilers

# Compiler Construction Perks

## Compiler of the Year Award T-Shirt



# Rumors

## The Good, the Bad and the Ugly

- Is this for the best students?
- Is this for the worst students?

# Rumors

## The Good, the Bad and the Ugly

- Is this for the best students?
- Is this for the worst students?

The answer is: **Yes!**

(and for everyone else)

# Hall of Fame (selected winners)



## Hall of Shame (selected losers)

**CENSORED**

## The default bachelor project in Computer Science

– *discuss the experience with older students...*

If you want another project, then

- find your own topic
- find an advisor
- prepare for greater personal responsibility defining a project

# Signing up

## I want this! What do I do?

- Sign up via the normal course registration and send me an email (check my folder to see exactly how this should be done)
- read (and answer) e-mail regularly in January regarding start-up and group formations
- don't book a skiing vacation for after semester start!