CS Specialisation: Software Analysis

This specialisation enables you to

- Analyse code using automated tools as well as specialised logics
- Formally describe the behaviour of programming languages
- Develop and implement domain specific languages (DSLs)
- Abstract from source code through models suitable for analysis
- Use advanced type systems for safe and structured software development
- Work with software in a high-level and semi-automated fashion, when the program code itself is subject to manipulation by development tools
- Discuss and evaluate new technologies and tools in programming languages
- Compare and discuss programming languages, and efficiently learn new languages

Career Prospects

This specialisation aims to prepare you to take software developer and software architect jobs in major software houses and consultancies (business software, administrative software, finance, etc). Major national companies (such as Edlund, Simcorp, Deltek/Maconomy) and major international corporations (including Google, Microsoft Development Center Copenhagen, Twitter, and so on) depend on their software systems working reliably. Therefore, they put extremely high value on advanced programming language and software analysis skills.

Prerequisites

Students are expected to be fluent programming in at least one functional programming language (e.g., Haskell, F#, or Scala), in discrete mathematics as taught at ITU, and in the implementations of compilers. Following the courses Discrete Mathematics, Advanced Programming (or Second Year Project: Functional Programming) and Programs as Data would satisfy these prerequisites. In general, the specialisation requires willingness to work with mathematical concepts.