

Multicore programming in C++ training

This training starts on: 23-03-2020

Location: Eindhoven
Price: 1.850,00 euro excl. VAT
Duration: 3 consecutive days
Contact: training@hightechinstitute.nl, +31 85 401 3600

Overview

Well-performing multithreaded code is still a mystery to many. This 3-day course teaches participants how to benefit from the power of modern multicore processors by understanding the ins-and-outs of parallelism, the parallel programming paradigms, applying parallel patterns and avoiding common pitfalls.

Read the interview with lecturer Klaas van Gend:

'Multicore programming skills do not come from Dijkstra'.

Intended for

C++ software engineers, designers, and architects who need to design bug-free fast-performing code that utilizes its underlying hardware well.

Prerequisites:

- Experience in software development
- Basic understanding of operating systems
- Reasonable understanding of modern C++

Objective

After successful completion of the course, the participant thoroughly understands how parallelism is implemented in modern CPUs. The participant can explain how modern C++ and supporting libraries help to keep complexity under control. The participant knows about

- Hardware architecture and modern CPU bottlenecks
- C++11+ parallelism and concurrency
- Reduce locking complexity and suffer less performance loss due to locking
- Berkeley's parallel pattern library
- OpenMP and other programming libraries
- Achieving speedups through parallelism

Programme

Day 1: Modern multicore computer architecture and concurrency, threading extensions in C++11 and newer, locking done wrong and right, RAII and libguarded.

Day 2: OpenMP, task and data parallelism, how to recognize concurrency opportunities, the Berkeley parallel pattern language, how to recognize and remedy parallelism blockers and data corrupters, parallelism anti-patterns.

Day 3: Using Vectorization, threadsafe API design, threading libraries, "Effective Multicore".

Information is subject to change. Please contact [High Tech Institute](mailto:training@hightechinstitute.nl) for the latest course information and time schedule.

Partner

Certification

Participants will receive a High Tech Institute certificate for attending this training.

Teacher

Klaas van Gend MSc

Timetable

23-03-2020 | 09:00 - 17:00

24-03-2020 | 09:00 - 17:00

25-03-2020 | 09:00 - 17:00

Every day has lectures and at least two larger supporting exercises.

Methods

Lectures, discussions, and exercises. On the last day, "Effective Multicore" is an interactive session where we revisit the topics from a different angle. Course material: USB stick with VM and exercises; book with course notes, handouts, exercises, solutions, and cheat sheets.