Projekt/KSWS: Computer Chess

Organizational Matters

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Programming a Computer for Playing Chess

- Computer chess, i.e., developing a computer program capable of playing chess, has a long tradition in computer science.
  - 1950 - Alan Turing created the first computer chess-playing algorithm, but the hardware at the time was not capable of running this algorithm. The algorithm was tested by hand!
  - 1957 - First fully automated chess engine
  - 1997 - IBM Deep Blue beat Kasparov (chess world champion) in a match of chess
  - today - Chess programs achieve super-human capabilities

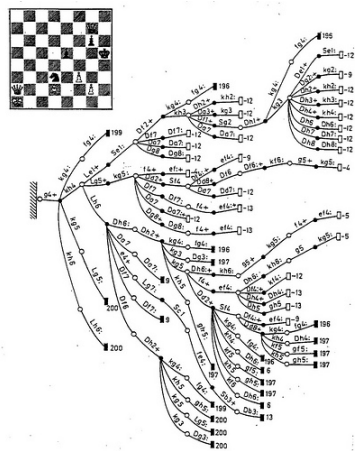
Programming a Computer for Playing Chess

- Computer chess, i.e., developing a computer program capable of playing chess, has a long tradition in computer science.
- The development of new hardware, algorithms and data structures drove advancement of chess programs.
- Chess served long as a testbed for new AI algorithms (LINK).

Overview of a Chess Program

A chess program typically consists of

1. a chess engine
   - calculating the best move in the current position
2. a graphical user interface (GUI)
   - visualization of the chessboard
   - saving and loading of positions
   - communication with the chess engine



Search tree of a chess engine

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Screenshot of the Arena Chess GUI

This project: Develop your own chess program!

- Students are divided into groups of three to four.
- Development is structured based on milestones
- Chess knowledge not necessary but recommended
- You as a group decide what you want to do:
  1. Development of a Chess-GUI
  2. Development of a Chess-Engine
  3. Analysis of Chess games
- Topics covered by short lectures:
  - Suitable software architectures for GUIs
  - Chessboard representations
  - Move generation and evaluation

Registration and Contact

- Restriction: max. 15 participants (seats will be assigned at 12.10.2026, 23:59)
- Enrollment in the corresponding Stud.IP course
  - Computer Schach - LINK
- Questions via E-Mail to Andreas Ruscheinski
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