Search, Navigate, and Actuate

Overview

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Objectives

- Integrate the knowledge and skills acquired in the 1th year
- Initiate skills to plan, manage, execute and report a software project
- Introduce the knowledge needed for robotics

Program

1th Week: Search

Find the next move for a chess playing robot

2nd Week: Navigate

Translate the move to movements of a piece

3rd Week: Actuate

Translate the piece movements to arm movements

4rd Week: Play

Do something nobody has done before

Schedule

2 hours: Lecture

Knowledge needed for the task

2 hours: Practicum with assistance (i.e. Eva, Casper, Thomas, Eelco & Nick). The person in lead will explain details of assignment

4 hours: Practicum without assistance

Work together on the assignment

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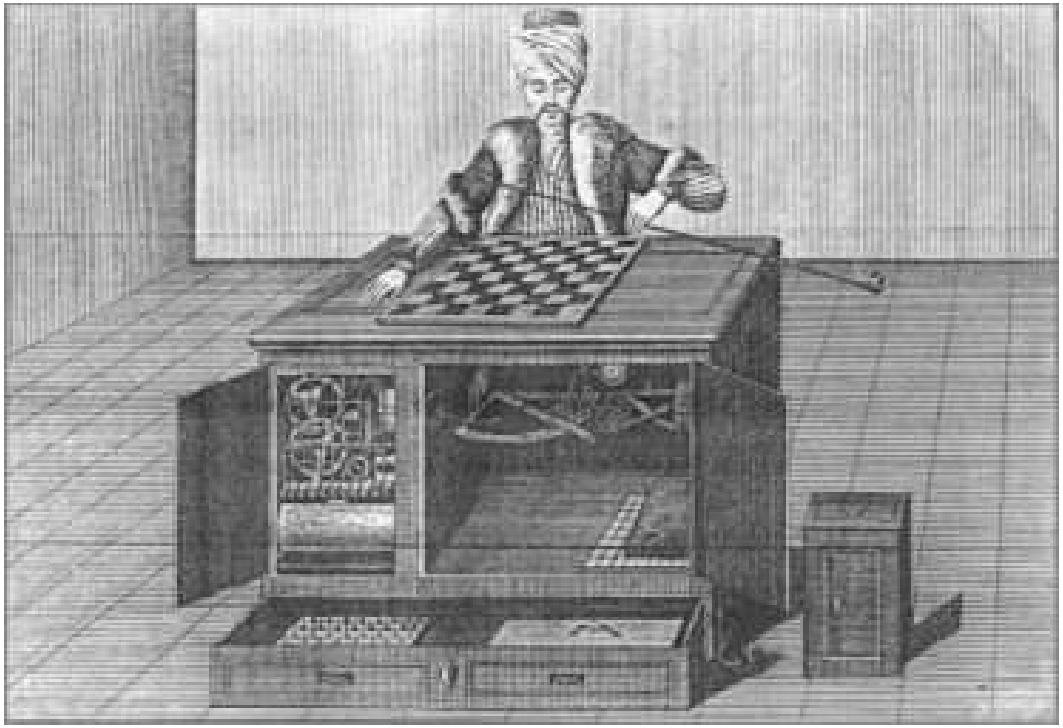
Grade

1th Week: Programming skills
TAs will grade your implementation of the chess endgame and give feedback on your report

3rd Week: Practical skills
TAs will grade your demonstration and report of the chess playing robot

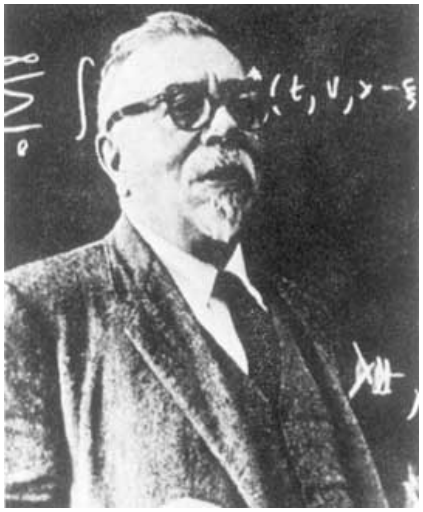
4rd Week: Experimental skills
Arnoud Visser will grade your demonstration and report of your survey

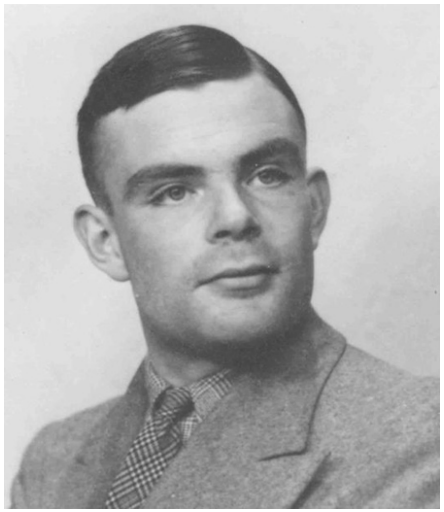
Classical problem in AI

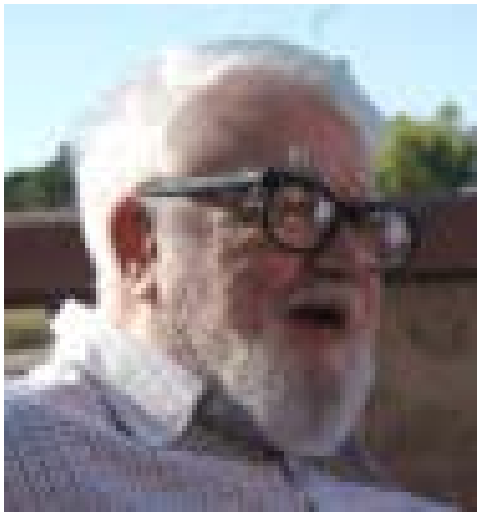


The chess-playing Turk defeated Napoleon in 1769

Many famous researcher contributed

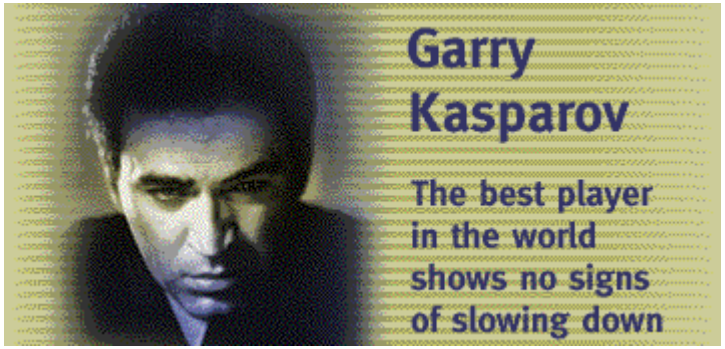






- Norbert Wiener (1948) introduced a design for a chess program including minimax
- Alan Turing (1951) wrote first full chess program
- John McCarthy (1956) conceived alpha-beta search

AI has ‘solved’ the problem



Deep Blue wins with 3½-2½ in 1997

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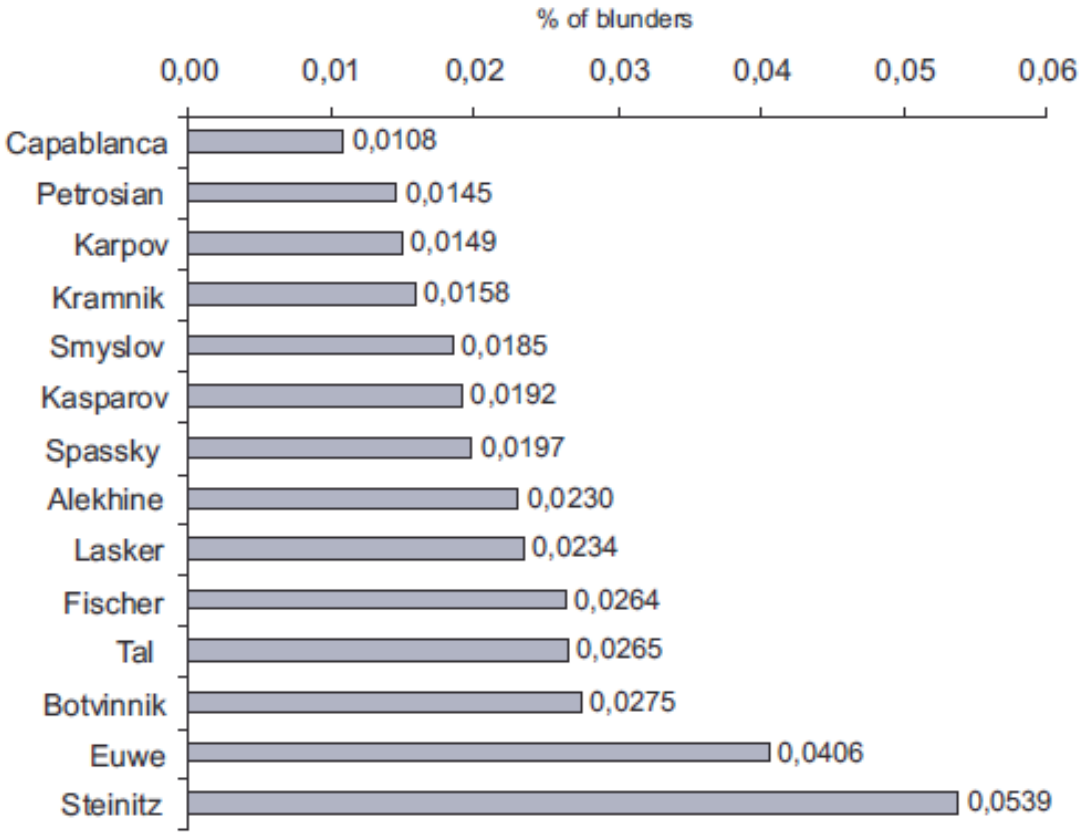
Computer used to analyze human chess champions



Matej Guid and Ivan Bratko
Computer analysis of world chess champions
ICGA Journal, 29 (2) (2006), pp. 65–73

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Now it is your turn:

Have fun!

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