Informatique et systèmes de communication ISC
Haute Ecole d'Ingénierie
Hochschule für Ingenieurwissenschaften

# Algorithmes & structures de données

## 10. Algorithmic project

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# Project


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# Project



## Project

- **Chess bot**
  - Use lecture material
  - Budgeted processing
  - **Stateless**
    - no memory passed between move evaluation
  - **Python**
    - **External libraries: numpy  PyQt6**
    - **Single thread // no networking**

## Rule set

- **Standard chess** rules except
  - No castle
  - No two-square move for pawns // No en-passant
  - Automatic queen promotion
  - No obligation to protect king
- Fixed number of turns
  - Winner = king taker **OR**
  - Winner = one with more pieces **OR**
  - Winner = random otherwise
- No move // Accepted because of timeout
  - **BUT do not consider it a valid strategy**

# Chess sandbo(x)ard

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https://github.com/LouisMLettry/ISChess

**Interface will stay fixed** (unless big publicly announced modification)

Don't hesitate to modify it → development/debug drawing.

Might be updated along the project ← be smart regarding your modifications

/!\ This is not the objective of the project ! Be smart about your investments

# Project

```
rw,nw,bw,qw,kw,bw,nw,rw
pw,pw,pw,pw,pw,pw,pw,pw
,,,,,,,,
,,,,,,,,
,,,,,,,,
,,,,,,,,
pb,pb,pb,pb,pb,pb,pb,pb
rb,nb,bb,kb,qb,bb,nb,rb
```

Loadable from comma separated value files. Each line must have the same number of columns

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String containing a sequence of [teamid|color|boardorientation]. The bot **plays the first color** in the chain.
E.g. **0w01b2** = standard chess and bot plays white
E.g. **0y01b20w11r3** = 2v2 with white and yellow playing against black and red and bot plays yellow

board: bidimentional array containing stringsto describe pieces
«» = no pieces
pc = piece/color (rw = rook white)
X = not accessible

**Pieces names**

| | |
|---|---|
| r:rook | q:queen |
| n:knight | k:king |
| b:bishop | p:pawn |

Time budget: Amount of time in seconds before the hand moves over. (if not returned by then → no move done)

```
def chess_bot(player_sequence, board, time_budget, **kwargs):
    ...
    return (from_x, from_y), (to_x, to_y)
```

You can forget about board orientation. The board will always be presented in standardized fashion.

kwargs: **not used during tournament** but useful for your development

# Organization

## Organization

- Project in **teams of 2 (except 1 of 3)**
- **Recommended attendance** to lectures

## Schedule

- **Start** **27.11.2025**
- **Development** *
- **Presentation** **08/09.01.2026 – 13h-17h**
- **Tournament** **15.01.2026 - midi**
  - Best bot → Ready

| Members | Team ID |
|---|---|
| Brunner & Lucas | ThinkR |
| Monod & Esteves | Tigre |
| Marthe & Prusse | Syntax |
| Hall & Zeiger | Chaise |
| Chobu & Marques | ISCrew |
| Favre & Roduit | Favrod |
| Schönman & Braz Jorge | Magnus |
| Schanen & Morsch | Gambit |
| Weber & Veuillet | A.L.P.H.A. |
| Müller & Svoboda | Martin |
| Naing & Pham | Graal |
| Oliveira Riberio & Gonin | PwnStr |
| Kulekci | Sas |
| Cortes Zuka & Da Silva & Zufferey | WinXP |
| Rey | Rey |
| Gorini | Gorini |

# Evaluation – Oral

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- **Oral – 30%**
  - **Date: 08.01.2026 & 09.01.2026 12-16H**
  - **~15 minutes solo**
  - **7 minutes – presentation**
    - Algorithmic description
      - What did you implement ?
      - What did you try ?
      - **3 Decisions' Metrics/Quantification**
        - Measure choices decisions
          - Ablation study, # states visited, timing
      - Showcase final results
        - Focus on produced algorithm (Focus on journey only if important)
      - Explain algorithmic choices
        - What methods ? Why ? How ?
      - And more …
    - **8 minutes -** Questions/answers
    - In french
  - Support: slides

# Tournament

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**Date: 15.01.2026**
**1200-1300 Tournament & pizzas !**

# Code handout structure



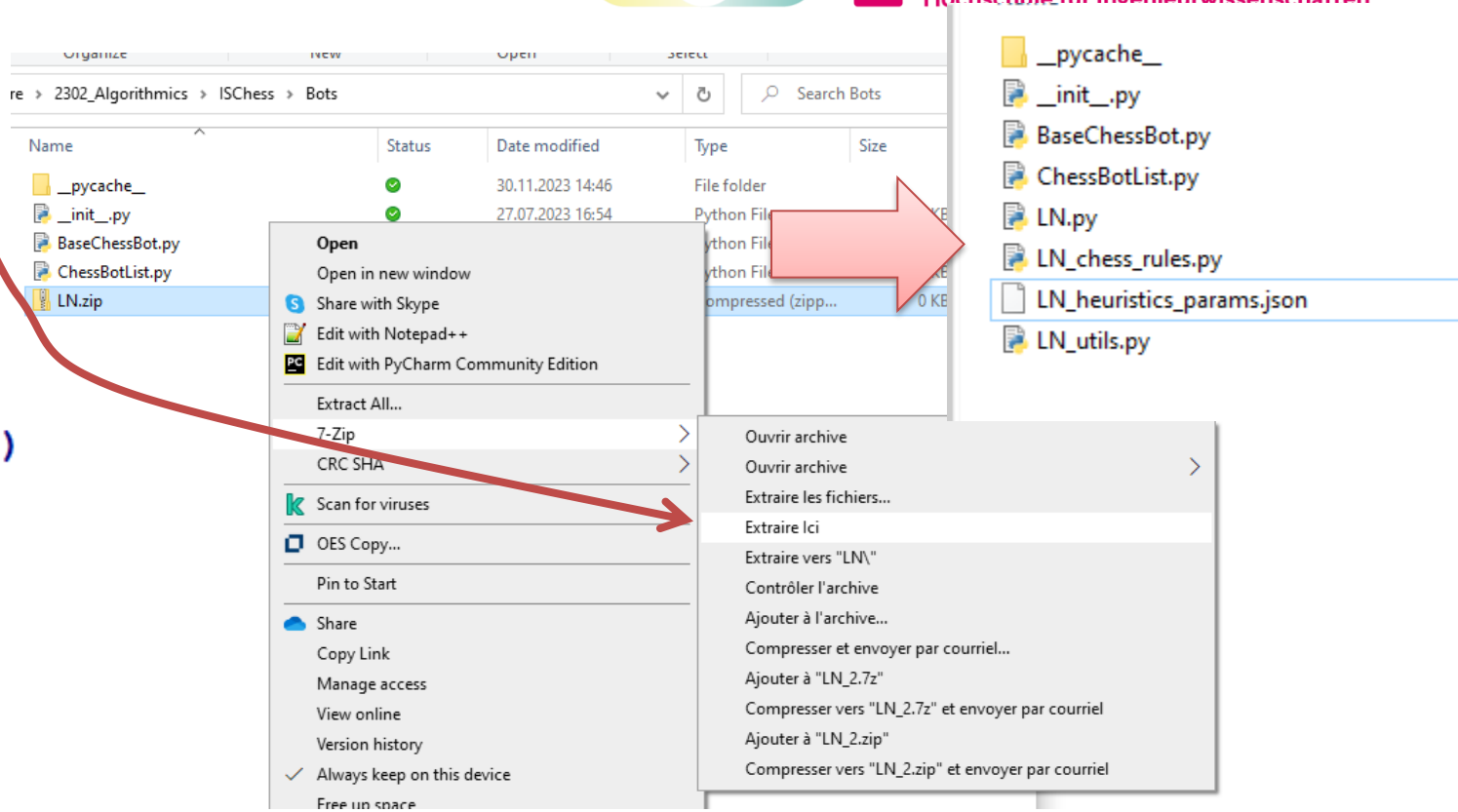
- Zip file
  - Unzipped **in place** in Bots/

**Files structure**

- Registering file **[TeamName].py**

```
#   Example how to register the function
register_chess_bot("TeamID", LN_chess_bot)
```

  - **[TeamName] will be the name of your bot for the competition. Make sure to set it correctly**
- All other files starting with ***TeamID_***
  - *Prevents overlapping of files with same names from different teams*




**Handout**

- **ISC Moodle** → homework will be opened *soon*