

ChessChamp Analysis

1. Overview

The "ChessChamp" Python implementation is a 5x6 chess variant featuring AI opponents, multiple themes, and adapted standard chess rules.

2. Key Components

2.1 Game Structure

Main Game Loop: game.py

Board Logic: board.py

AI System: ai.py

User Interface: ui.py

Configuration: constants.py

2.2 Core Features

AI Implementation

- Uses minimax algorithm with alpha-beta pruning
- Depth-limited search (default depth=3)
- Evaluates: material balance, piece mobility, center control, and king safety

Game Mechanics

- Adapted standard chess rules for 5x6 board
- Check/checkmate detection
- Move history with undo/redo functionality

User Interface

- 16 board themes
- Interactive setup menu
- Visual move highlighting

3. Code Quality Assessment

Strengths

- ✓ Modular structure
- ✓ Comprehensive chess rules
- ✓ Clean separation of logic/UI
- ✓ Robust move validation