

Real-Time Strategy Game AI and More

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GAMES Group
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(Game-playing, Analytical methods, Minimax search and Empirical Studies)

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Outline

- 1 GAMES Group
- 2 Real-Time Strategy Games and AI

GAMES Group



Jonathan



Martin



Michael



Rob



Mike



Duane



Vadim



Ryan



Joe



Nathan



Finnegan



Jack



Darse



Adi

...

Abstract Games and Puzzles

- 15-puzzle
- Go
- Checkers
- Poker
- Skat
- Hearts, Spades, ...

Simulation-Based Games

- RPGs (Neverwinter Nights)
- Sports games (RoboCup and FIFA Soccer)
- RTS games
- FPS games
- Billiards ...
- Heuristic search
- Combinatorial game theory
- Opponent Modeling
- Acting under uncertainty
- Endgame/pattern databases
- Evaluation function learning
- Multiplayer games ...
- Multi-agent pathfinding
- Single-agent and adversarial planning
- Threat modeling
- Strategy visualization
- Scripting ...

- Single-agent and adversarial planning
- Abstraction
- Acting under uncertainty

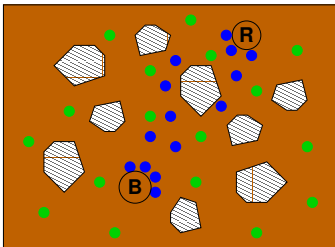
Application: Real-Time Strategy (RTS) Games



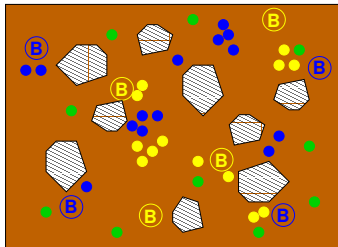
- Current RTS game AI systems have little reason, learn, or planning abilities
- Large number of **simultaneous micro actions**
- Fast-paced action
- **Imperfect information**
- RTS games are feature-rich and can be **tailored** to particular research questions

RTS games suitable testbed for real-time AI research

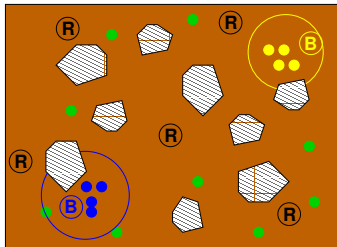
RTS game AI tournaments planned for next year at AIIDE



Game 2: Tank Combat



Game 3: Simplified RTS Game



Need Help!

Tournament Infrastructure

- Match scripts
- Generating reasonably fair random maps
- Adding spectator mode to the ORTS GUI
- ORTS QA

Tournament Entries!

- Hook up pathfinding algorithms to ORTS (Game 1,2,3)
- Small-scale combat (Game 2,3)
- Build-order optimization (Game 3)
- Resource allocation, scheduling (Game 3)
- Scouting (Game 3)

Interested?

605 course on RTS game topics next term

Team effort to win at AIIDE!