Bowyer is a tool designed to address two obstacles to the integration of AI planning algorithms with commercial 3D game engines. Bowyer bridges the gap between the declarative representations in a planning domain and the procedural framework of a virtual environment via the use of code generation techniques. The tool allows a user to specify a planning domain and then automatically generates a procedural representation of that planning domain for use in the virtual environment.

Bowyer breaks the process of integrating a planning system with a game engine into three general steps. The first step involves the specification of a declarative planning domain in a representation based on the STRIPS planning language. The second step involves the generation of procedural representations of the planning domain operators and objects for use in the virtual environment through the mapping of virtual environment sourcecode to the planning operators and objects and using code generation techniques to create the full procedural representations of the operators and objects. The final step consists of integrating plans into the virtual environment by a) creating specific planning problems, b) automatically retrieving solutions to the planning problem from a planning service and c) executing the resulting plans in the virtual environment using the code generated by Bowyer. Bowyer’s functionality allows planning researchers to integrate their planning research into virtual environments without the need to have extensive knowledge of virtual environment development.

**Team members**

Pat Cash (lead developer)
R. Michael Young (faculty contact)

**Bowyer publications**

Cash, Pat and Young, R. Michael, Bowyer: A Planning Tool for Bridging the gap between Declarative and Procedural Domains, in the Proceedings of the Fifth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-09) Stanford, CA, October 14 - 16, 2009. [PDF]
Bowyer video or image files

None available.

Boyer in the news

None available.

Boyer software

Please contact R. Michael Young (young at csc.ncsu.edu)

Boyer sponsors

Bowyer was an unsupported research project developed by Pat Cash as the core of his MS thesis work.