

Project Year

2003

Project Team

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Project Title

Interactive Case Studies for *Perspectives on the Evolution of Structures*

Audience

Students enrolled in *Perspectives on the Evolution of Structures*, a new course offered by the Department of Civil Engineering and cross-listed in General Engineering

Pedagogical Issue

Traditional learning modes for exploring structural behavior use two-dimensional line drawings and mathematical hand calculations, providing little connection to the real world. Opportunities for active learning are limited.

Solution

The development of online structural case studies enables students to interact with, and modify, discrete structures. This project proposes to develop a method for presenting case studies of structures and their corresponding structural calculations in an online web page with interactive Flash animations. Instructors have selected the Eiffel Tower and the George Washington Bridge, two cases for which commentary and structural calculations in a static form are readily available. The online structural case studies will provide illustrative commentary alongside images of the real structures and the larger context in which they exist in Paris and New York. The images will be cross-linked to more in-depth discussions and resources, including abstract, two-dimensional digitized pictures of the same structures. This resource will provide the students with a means of modifying the basic geometry and loading of the structures and then viewing the results of their structural calculations, both quantitatively and visually, in Flash animations. The instructors anticipate that their online structural case studies will provide a model for further development of additional case studies of physical systems, not only within this course, but in a variety of other courses.

Technologies Used

Macromedia Flash

Links to the Perspectives on the Evolution of Structures site are available here:

<http://www.ce.jhu.edu/perspectives/>

http://www.ce.jhu.edu/perspectives/studies/Eiffel%20Tower%20Files/ET_Introduction.htm

http://www.ce.jhu.edu/perspectives/studies/George%20Washington%20Files/GW_Introduction.htm