

# WICHITA STATE UNIVERSITY

Department of Mathematics and Statistics

*The Lecture Series in the  
Mathematical Sciences Presents Our Guest:*

## Dr. Shang-Ching Chou

Department of Computer Science, Wichita State University

### ***"Visual Presentation of Proofs in Elementary Geometry"***

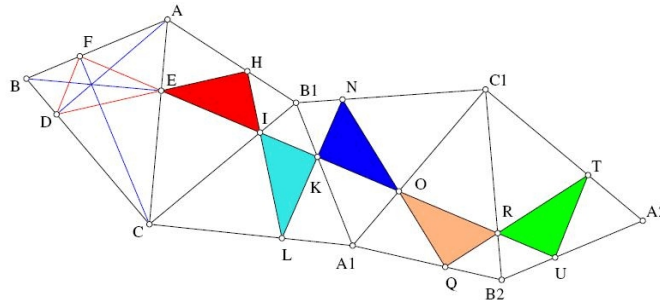
When we read a proof in a geometry book, we often need to spend time and energy on identifying a geometry element (i.e., a point, a line, a segment, an angle, a triangle, a circle, etc.) in the proof text with that in the corresponding diagram. When the same element is mentioned later in the proof text, we might spend an equal amount of time and energy on identifying it again in the diagram. When the diagram becomes complicated, e.g., there are more than a dozen points involved in the diagram, the problem becomes serious, not only to novices in geometry proofs, but also to experts.

Geometry textbooks generally alleviate this problem by using two or more diagrams with different marks for angles and segments, and possibly with shadowed areas, e.g., a shadowed triangle, in the diagrams. But this solution is static.

With dynamic mediums such as computer displays, we propose an entirely new kind of presentation of proofs in plane geometry -- visual proofs.

In this talk, we will demonstrate how to create a visual proof manually or automatically with our developing system JGEX (Java Geometry Expert).

As an introduction, the talk begins with an overview of automated theorem proving in general.



The Schwarz solution to the pedal triangle problem

For more animated gif images, please connect to: <http://woody.cs.wichita.edu/o/o/o/collection/index.html>

## Friday, April 20, 2007

## 3:00 PM in 372 Jabara Hall

*Please come join us for refreshments before the lecture  
at 2:30 p.m. in room 353 Jabara Hall.*