Tool, Technique, and Tao in System Security Education

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梁振凯
Levels of Understanding

What
Tool

How
Technique

Why
Tao

Doctor of gdb
Doctor of Debugging
Doctor of Philosophy
From Technique to Tao

• Tao is our *own* view of the world

• Technique to Tao through **reflection**
  - Connecting and compiling knowledge into our internal representation
Challenges

• Fast changing landscape in computer science, especially security
  ▪ Knowledge and tools are out-of-dated soon

Focus for Learning:
Objective, instead of operation
Tao over Technique

- Principle of Chinese martial art
  - Spirit, instead of fist and sword

以柔克刚
Countering force with agility

以不变应万变
Counter changes with a constant principle

- Practice, and more importantly, reflect.
Methodology of Learning in System Security

**Attack:** Break System

**Solution:** New Defense

**How Systems Work?**

**How** Attacks Work?

Security is a new way of thinking.
Motivating Students

• Practice/demo in class
  - Seeing is believing
• Grades vs. Career
  - What is the long-term learning objective?
MOOC vs. University Education

• Photography vs. painting

• Tool → Technique → Tao
Thank you!

Mission of university education?

Tao Reflecting Thinking Quietly