The Life of a Software Concern

Bram Adams
Ahmed E. Hassan
SAIL, Queen's University
http://sailhome.cs.queensu.ca/~bram/
What is a software concern?
Software Concerns

- Exception handling
- Tracing
- Security
- 3D rendering
- Multi-threading
- Memory cleanup
- Performance
- Data persistence

[Image of a smiling person]
Ideal Design

- Exception handling
- Tracing
- Data persistence
- 3D rendering
- Security
- Memory cleanup
- Multi-threading
- Performance
Concern Drift
How to Deal with Concern Drift?

vs.

[Image of an eye and a person with a concerned expression]
Tracking the Evolution of Concern Scattering and Tangling
Concern Diff

stable concern  →  new concern

disappearing concern

EVOLUTION

METRICS

09 December 2001 @ 06:18:04

Select a state
Global Evolution
TECST

CVS

evolutionary extractor

time

concern mining
Challenges
Challenge 1

CVS

evolutionary extractor

time

concern mining
1. Concern Mining
Shortcomings

limited precision and recall

noise
Challenge 2

evolutionary extractor

concern mining

time
2. Concern Identity?
1. Concern Mining

Shortcomings

- limited precision and recall
- noise

2. Concern Identity?

- new concern
- stable concern
- disappearing concern

Concern Drift