

IWPD 2014: Panel Discussion

Program Debugging: Research & Practice

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Panelists

- Eric Wong (University of Texas at Dallas)
- Franz Wotawa (Graz University of Technology, Austria)

Some Challenges (1)

- **State-of-the-art academic controlled experiments versus State-of-the-practice industrial best practices**
 - Major difference
 - Practicality
- **Benchmark & Assumptions**
 - Subject programs
 - Single-bug multiple-bug
 - Perfect bug detection
 - Evaluation Metrics
- **Test generation and program debugging**
 - How to find a failure-cause test
 - Test reduction & prioritization
 - Dynamic versus static

Some Challenges (2)

- **Failure reproduction**
 - Deterministic vs non-deterministic
 - Embedded systems
 - Real-time systems
- **Effectiveness, Efficiency, Data Collection, Tool Support**
- **Automation**
 - Hardware debugging versus software debugging
 - Cycle I:
 - Test generation
 - Test execution
 - Output verification (Oracle, coincidental correctness)
 - Cycle II:
 - Fault localization
 - Bug fixing
 - Regression testing
- **Factor need to be considered for new techniques**