MICRO Test-of-Time Award 2018 Winners

Pradip Bose
award committee chair

presented by Saugata Ghose
About the MICRO Test-of-Time Award

• Recognizes the most influential papers published in prior MICROs
• Prior winners online at https://www.microarch.org/tot/

• 2018 Award Committee
  • Tor Aamodt (UBC)
  • Reetuparna Das (Michigan)
  • Onur Mutlu (ETH Zurich)
  • Pradip Bose, chair (IBM)
  • Daniel Jiménez (Texas A&M)
  • Sreenivas Subramoney (Intel)

• Logistical support: Saugata Ghose (CMU)
And the Winners Are…
The International Symposium on Microarchitecture®
MICRO Test-of-Time Award
presented to

Erik Jacobsen
Eric Rotenberg
James E. Smith

for their MICRO-29 (1996) paper entitled

Assigning Confidence to Conditional Branch Predictions

in recognition as one of the most influential papers of the symposium

Presented on 10/23/2018 at the 51st Annual Symposium, Fukuoka, Japan
The International Symposium on Microarchitecture®
MICRO Test-of-Time Award
presented to

**Todd Austin**

for his MICRO-32 (1999) paper entitled

**DIVA: A Reliable Substrate for Deep Submicron Microarchitecture Design**

in recognition as one of the most influential papers of the symposium

Presented on 10/23/2018 at the 51st Annual Symposium, Fukuoka, Japan
The International Symposium on Microarchitecture®
MICRO Test-of-Time Award
presented to

Thomas Ball
James R. Larus

for their MICRO-29 (1996) paper entitled

Efficient Path Profiling

in recognition as one of the most influential papers of the symposium
Presented on 10/23/2018 at the 51st Annual Symposium, Fukuoka, Japan
Assigning Confidence to Conditional Branch Predictions

Author Reactions

• **Eric Rotenberg** (NCSU)
  • “We are honored, and very grateful to you and the ToT Award Committee…”

• **Jim Smith** (Wisconsin)
  • “I echo Eric's comments -- thanks for your efforts!”
  • “This was an undergrad research project and Erik was the undergrad.”
DIVA: A Reliable Substrate for Deep Submicron Microarchitecture Design

Author Reactions

• Todd Austin (Michigan)
  • “AWESOME NEWS!”

• Why this paper is notable:
  It expanded the boundaries of speculation to include the correctness of a design (and those boundaries kept expanding until they bumped up against Spectre/Meltdown!)

• What Todd learned from this paper:
  • A rule-breaking approach to research is an effective one (DIVA broke the rule that all bugs need to be found)
  • Industry can like and support an idea with no intention of ever using it (which led to Todd’s Razor work)
DIVA: A Reliable Substrate for Deep Submicron Microarchitecture Design

Author Reactions

• **Todd Austin** (Michigan)

  “This paper is very special to me because it gave me early confidence in my academic career, and it very much informed my later approach to computer engineering research. I am so delighted to see this personally important paper win this incredibly prestigious award!”

• **Special thanks:**
  • David Lilja (Todd got the idea while chatting with David)
  • James Smith (who taught Todd how to better present this idea)
  • Intel (for teaching Todd the extreme cost/value of correctness)
Efficient Path Profiling

*Author Reactions*

- **Tom Ball** (Microsoft Research)
  - “It was a simple algorithm that was easy to understand, prove correct and implement; as a result, it spread quite quickly to various profile-driven compiler frameworks.”

- **Jim Larus** (EPFL)
  - “I was working on program tracing and binary instrumentation, in large measure because I also worked closely with computer architects… who at the time still did most of their research with program traces.”
  - “Definitely one of those papers where all of the pieces fall together and the end result is very satisfying.”
  - “This is great news, and I am particularly pleased that this paper was recognized as it is my favorite paper…”
2018 MICRO Test-of-Time Award

Assigning Confidence to Conditional Branch Predictions
Eric Jacobsen, Eric Rotenberg, Jim Smith
MICRO 1996

DIVA: A Reliable Substrate for Deep Submicron Microarchitecture Design
Todd Austin
MICRO 1999

Efficient Path Profiling
Thomas Ball, James Larus
MICRO 1996