Panel: Energy Efficient Computing: hype or science?

Moderator: Feng Zhao, Microsoft Research
Panelists: Chuck Thacker, Microsoft Research
Fred Chong, UC Santa Barbara
Rajesh Gupta, UC San Diego
Philip Levis, Stanford University
Trishul Chilimbi, Microsoft Research
Computing and Energy

Computing on a dime
$10^{-2}$ W

Computing in a warehouse
$10^7$ W

9 orders of magnitude in power difference

Tradeoffs in energy and performance across the scale
Systems vs components
   • If all the components are energy proportional, would the system automatically do the right thing?

Software vs hardware
   • What is the role of software in optimizing for energy efficiency?

Visibility and accounting
   • Do we know where the joules go?

Energy vs performance
   • Just another proxy? Run as fast as possible?

Science vs engineering
   • Deeper roots of energy and power as related to computing?
Panelists

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