What constitutes a useful experimental result?

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On experimental vs. theoretical research

"It is the hand that shapes the head, not the other way around."

-- translation from a Marathi haiku

(thanks to Jitu Padhye)

Neither hardware nor market realities limit experimental results severely

Yes, both are constraining

Yes, both represent moving targets

But, no reason to be paralyzed

- Often, there are ways to skirt these limitations
  - E.g., leveraging broadcast capability, software radios

Instead, it is poorly specified applicability context

Does a given result apply in a different setting?

- Can be hard for even good experimental results

It is a problem common to other fields

- E.g., network measurement, cancer research

Context should be captured at all layers

- PHY
  - BPSK vs. QAM-64 for ANC and SIC
  - Binary vs. gray loss patterns for routing
- MAC
  - Transmit rate adaptation for opportunistic routing
  - The extent of collisions for rate adaptation
- Network (topology)
  - Mesh vs. infrastructure for hidden terminals

Context should be captured at all layers (2)

- Transport
  - TCP vs. UDP for performance
- Application
  - Bursty vs. always-on for network coding
- Environment
  - Interference-free or interference-ridden
- Mobility

More on capturing context

Exactly what should be captured?

- More detail is better but that has its limits
- Should reproducibility be the goal?

Should practical approximations be OK?

- May usefully expand applicability

“Applicability considerations” in papers?