Approximate Computing

- Premise: some analyses do not require absolute correctness
- Exploit gap between the accuracy required by users and that provided by the computing system
- Used to reduce storage as well as improve performance and energy efficiency: shortcuts reduce energy-consuming cycles
- Not a new idea: lossy algorithms encode pictures (JPEG) and music (MP3), & location is often approximated (e.g. aggregation)
- Mobile devices with sensors: use "spare" cycles at node to pre-process/approximate (more later)
- Mittal, S. 2016. A survey of techniques for approximate computing. *ACM Computing Surveys* **48** (4): 62:1–62:33. doi:10.1145/2893356