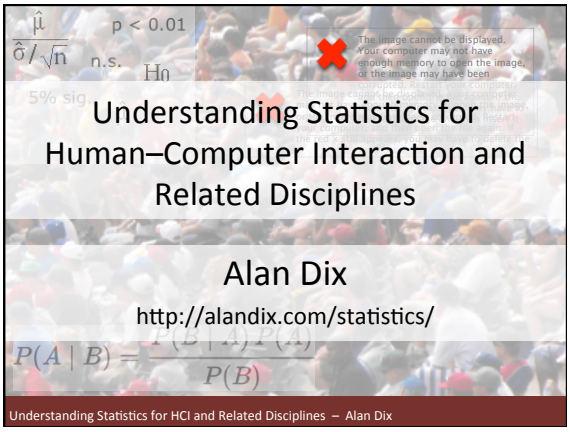
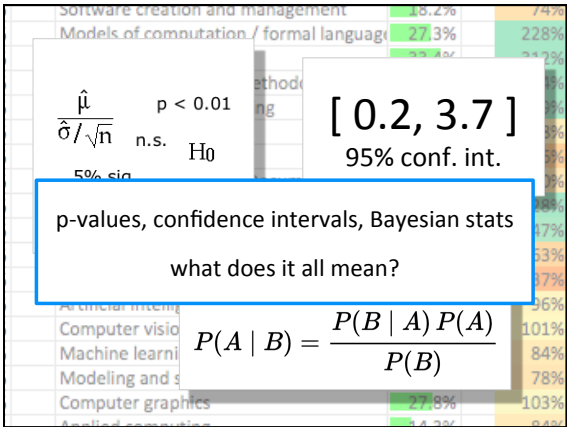
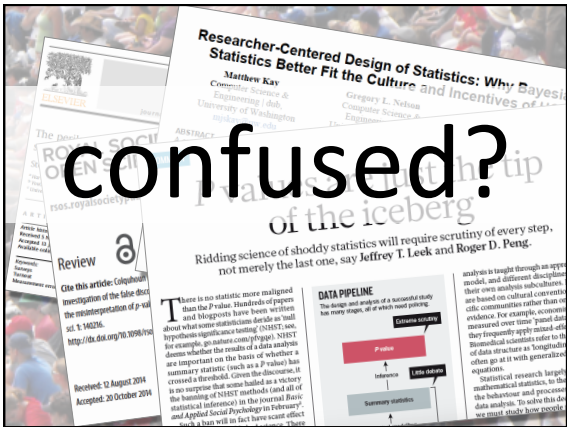
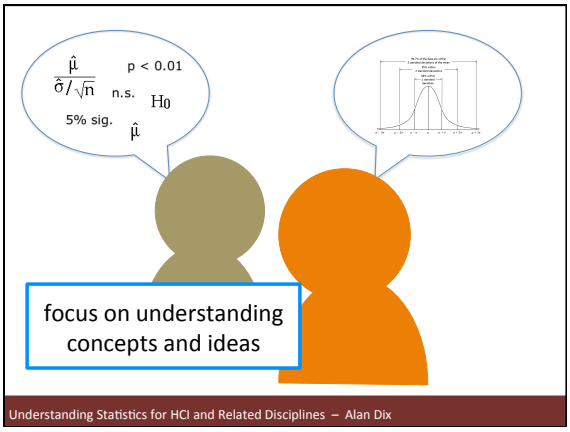
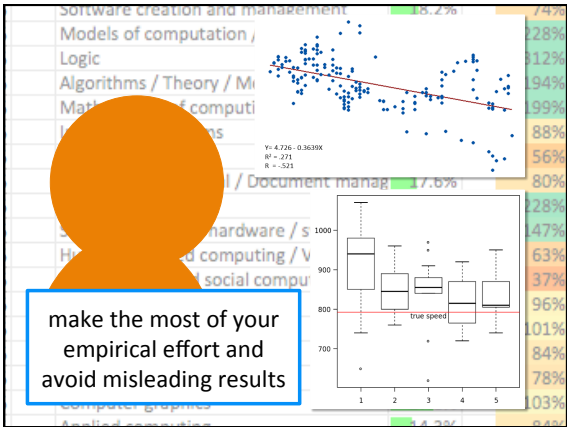










overview – four parts

wild and wide
- exploring randomness, uncertainty and 'distributions'

doing it
- alternative statistical analyses: the ubiquitous 'p' to Bayesian

gaining power
- avoid the dreaded 'too few participants'

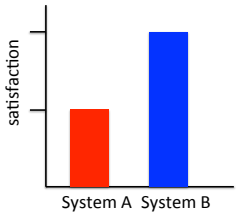
so what?
- making sense of your data and avoiding the pitfalls

Understanding Statistics for HCI and Related Disciplines – Alan Dix

do I need statistics?

just eyeball the data …

is system B better?



how many participants?
- 3000 – sure thing
- 3 – maybe just chance
- 6, 15, 30, 90, 300, …?

you do stats all the time!
but how can you know that you are right?

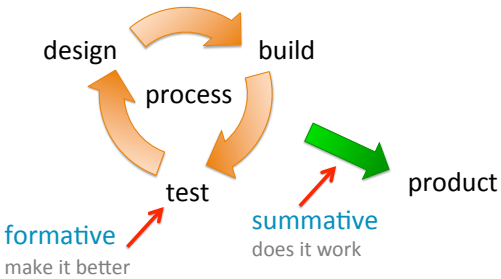
why are you doing it?

exploration vs. validation
process vs. product

research

exploration	validation	explanation
?	✓	
finding questions	answering them	finding why and how
ethnography in-depth interviews detailed observation big data	experiments large-scale survey quantitative data	qualitative data theoretical models mechanism

development



formative
make it better

summative
does it work

exploration / formative
- find *any* interesting issues
- stats about deciding priorities

validation / summative
- exhaustive: find all problems/issues
- verifying: is hypothesis true, does system work
- mensuration: how good, how prevalent

explanation
- matching qualitative/quantitative, small/large samples

are five users enough?

original work

Nielsen & Landauer (1993) about *iterative* process

not summative – not for stats!

N.B. later work on saturation

how many?

to find enough to do in next development cycle

depends on size of project and complexity

now-a-days with cheap development maybe n=1

but always more in next cycle