research cycles and collaborator roles
- value of collaboration: success stories
- difficulty of collaboration: when to walk away

my usual approach
building shared understanding and vocabulary does require
you are the target user
methodology: algs for computing correspondences
visual layering to disambiguate edge crossings
value of collaboration: success stories
middle: fellow tool builders, outside of vis
difficulty of collaboration: when to walk away
two projects in collab with perceptual psych researcher
two projects in collab with HCI researchers
driven by: needs of microbiologists studying protein-protein
left: providers of principles/methodologies
research cycles and collaborator roles
value of collaboration: success stories
difficulty of collaboration: when to walk away

methodology: mathematics of hyperbolic geometry
collab as way to build expertise
webviz: first project, in collab with hyperbolic geometry
H3: later project, solo

Munzner and Burchard. Visualizing the Structure of the World Wide Web in 3D Hyperbolic Space. Proc VIM, 95
Munzner. H3: Laying Out Large Directed Graphs in 3D Hyperbolic Space. Proc InfoVis 97

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Q1. Real Users or Fellow Tool Builders?
- real users
  - target end-users intended to use tool
- fellow tool builders (FTB)
  - non-infos person, typically from CS domain
  - wants to work with me to build a (better) tool aimed at end users
- example: data mining FTB wants to add infos "windshield" to steerable data mining system
- intended real users are analysts with warehouse of market basket transaction data

Q2. Real Need?
- do users need a new tool/technique/approach?
  - are existing tools good enough to do the job?
  - even if not perfect from infos research standpoint
  - some users do have infos needs without knowing it
- is problem on the table best solved with infos?
  - or other methods?
  - some users who ask for infos, don't have real need
- are users willing to try new tool?
  - success is hard enough with enthusiastic end users
  - not worth uphill struggle to deal with reluctant users

Q3. Real Task - Showing the Right Structure?
- is the structure I'm showing really what they need to see?
  - or am I just addressing need of FTB, but not real users?
- or does that add cognitive overhead, rather than reduce it?!

Q4. Real Data - Can I Have It?
- is data proprietary?
  - many reasons for data producer to not release it
  - exposure intellectual property, embarass organization
- example: data mining dashboard
  - never occurred to me to ask if real data available
  - ...because collaborator approached me
  - did not explicitly consider FTB vs. RJI role
- discovered DM cultural norm of synthetic data for benchmarks, only after many months into project
- conjecture: we're not seeing something useful because nothing to see in fake data, will change when get real data

Q4. Real Data - Can I Have It?
- example: data mining dashboard, cont.
  - reality: could not get real data
  - eventually scavenged quasi-real data
  - alas, nifty scalable technique still didn't show anything useful
  - realized approach didn't match task 2 years into project
- outcome: tech report

Q3: Real Task - Will Their Need Persist?
- do they do chosen task seldom or occasionally or always?
  - will they keep doing it?
  - example: Constellation project
  - by the time system done, their needs had shifted
  - outcome: InfoVis 99 paper was careful design study, but could not say users had adopted

Example: Power Grid Control Room Vis
- FTB collaborator conjecture: control room operators had specific problem during crisis use that infos would solve
  - new project, just funded
  - FTB connection with real users allowed control room visit
  - investigation led me to disagree
    - existing tools satisfied users, were adequate for normal use
    - plus, in midst of upgrade to new systems
    - unclear if user buy-in or available data
- outcome: walked away early, before engaging in earnest

Characteristics I Look For In Collaborators
- people with driving problems
  - big data
  - clear questions
  - enthusiasm/respect for vis possibilities
  - all collaborators
  - has sufficient time for the project
  - research meetings are fun
  - project has funding (ideally)

Outline
- research cycles and collaborator roles
- value of collaboration: success stories
- difficulty of collaboration: when to walk away

Four Process Questions
- questions to ask before starting collab projects
  - sometimes I asked them early
  - sometimes I wish I'd asked them early
  - 1. what is the role of my collaborators?
  - real users with driving problems?
  - fellow tool builders?
  - providers of principles or methodologies?
  - 2. is there a real need for my new approach/tool?
  - 3. am I addressing a real task?
  - 4. does real data exist and can I get it?
Collaboration Conclusions

- simple story misses some complexity
  - go forth and collaborate
  - three cheers for interdisciplinary research

- nuanced message: collaboration is a challenging dance
  - learning each other's language
  - finding the right people
  - finding the right problems

- big picture: often very rewarding and worthwhile
  - but keep checking that needs on both sides are being met