networks, networks, networks everywhere!

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slides are available online

github: http://github.com/ericmjl/big-data-boston-2016/

about myself

- doctoral candidate, MIT biological engineering
- self-taught pythonista
- using networks to problems in infectious disease ecology, evolution & biochemistry

outline

1. what are networks?
2. example 1: recommendation systems - cliques
3. example 2: panama papers - path tracing
4. example 3: influenza ecology & evolution - network statistics
5. example 4: neural networks on networks - graph deep learning

what are networks

networks, a.k.a. **graphs**, are composed of **nodes** (circles) and **edges** (lines)

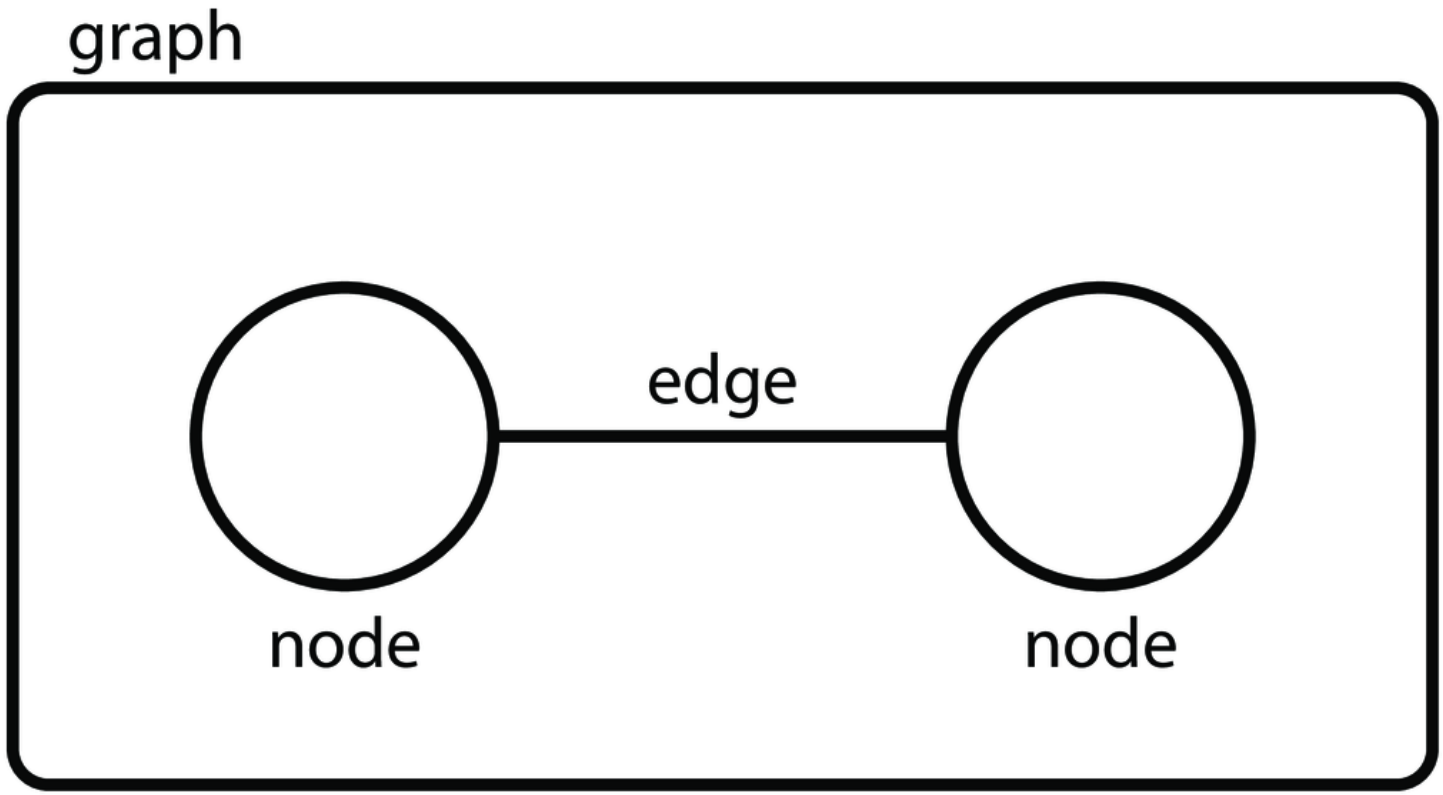
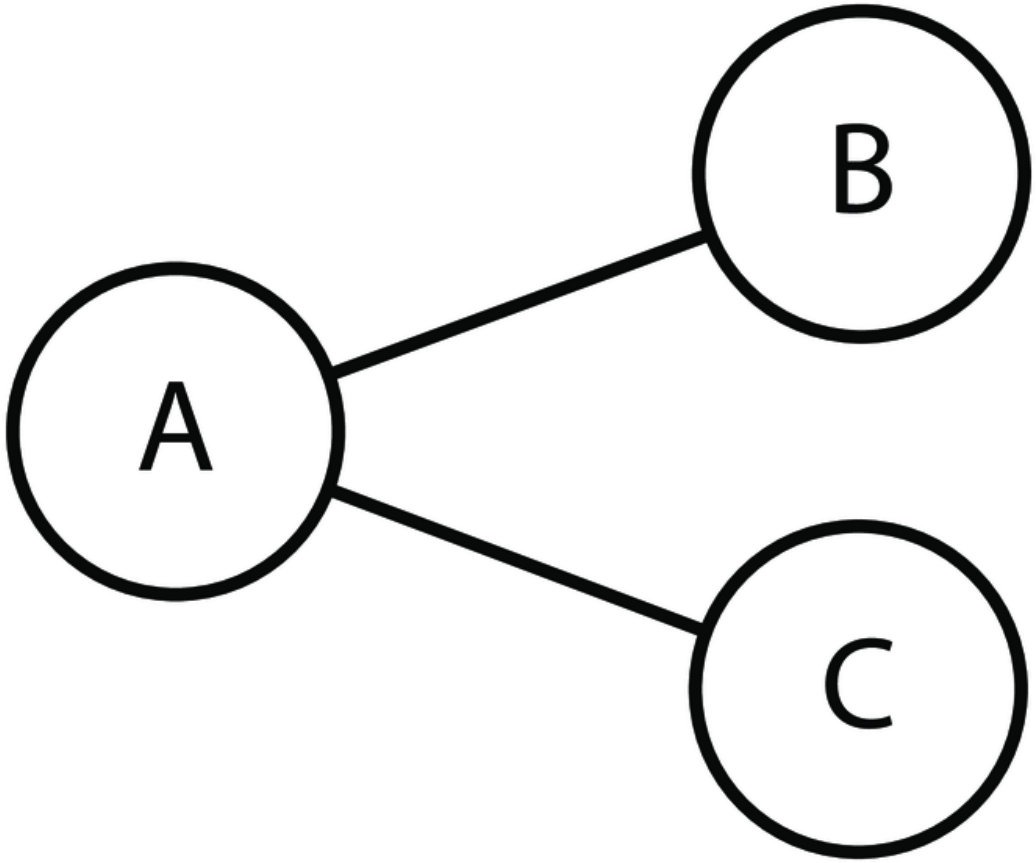


Figure 1: A simple network.

example 1: recommendation systems

if `A` is connected to `B` and `C`, but `B` and `C` are not connected, then maybe they should be!



example 1: recommendation systems

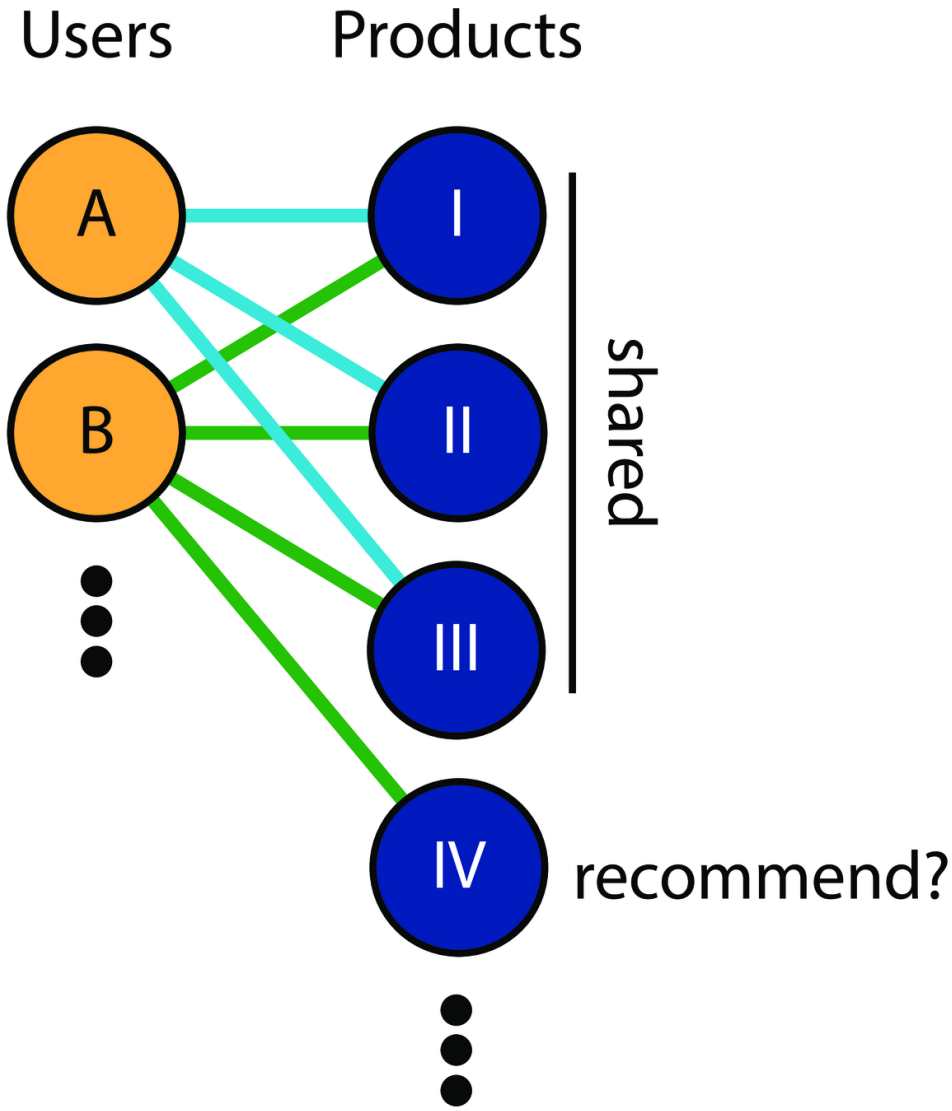


Figure 3: Collaborative filtering.

example 2: influenza ecology and evolution

example 3: neural networks on networks

conclusions

- think relationally
- networks can be used creatively to solve all sorts of problems

keep in touch

- personal website: ericmjl.com
- available for data and network science training
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