My Interests

- Mainly: Reliability (in communication) (in theory)
- Some Past Works:
 - Error-correcting codes & List decoding
 - Local testing/correcting of codes
 - Communication with no prior context!
 - (Talking to alien, child learning language)
 - Communication with lots of (imperfectly shared) context
 This talk?
- Other interests:
 - Probabilistically Checkable Proofs ...
 - Any mathematically interesting question

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O Mike Baldwin / Come

"This is a good one. It means, 'Until my every need is met, your life will be hell."

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Sept. 17, 2021

Madhu Sudan: CS Lunch

A Current Interest



- Aggregation of Information/Errors: [Ben-Eliezer, Mossel, S'21]
 - Underlying issue: Knowledge is cumulative ... but errorprone.
 - How does latter affect former?
 - Needs error-correction (else almost everything erroneous).
 - Information spread model?
 - Errors?
 - Correction?

Aside/Poll

- What fraction of papers in math journals have an error (in thm/lemma)
 - If you think:
 - $\leq 5\%$: Raise Hand
 - \ge 30% : Cross Hands (X/No on zoom)

A baby model (Inf. Prop.+Errors)

- Information: Single bit of information at "source"
- Network: Nodes connected in a tree rooted at source
- Propagation: Nodes copy parent information (prob. p of error)
- Correction: With prob. q in each round check information against parent and update to parent's value.
- Question: If p = .001 and q = .99 and tree is a complete binary tree, what fraction of nodes that have information have it right?

Some proofs/pictures (TBDrawn)

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