NSF Proposal
Writing Workshop

Nate Foster
Cornell University
My Background

Education
- BA Williams College 2001
- MPhil University of Cambridge 2008
- PhD University of Pennsylvania 2009

Interests
Programming language design and implementation

Some recent projects
- Bidirectional Programming: languages in which every program can be run both forwards and backwards
- Network Programming: high-level and declarative languages for programming network routers and switches
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• Working around mid-July deadlines
Proposal

“Principles and Practice of Distributed Updates”
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Built on and extended three themes:
Proposal

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• Bidirectional Programming
Proposal

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• Bidirectional Programming
• Verifying Software Upgrades
Proposal

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Built on and extended three themes:

- Bidirectional Programming
- Verifying Software Upgrades
- Consistent Network Updates
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Key idea: use bidirectional programs to bridge the gap between data and code during updates to distributed systems
Introduction
Education Plan

Three-day workshop for high-school students

**Goal:** introduce students to careers in computer science and other STEM disciplines

**Curriculum:** data analysis and visualization in Processing

**Partners:**
- New York State 4-H
- Science Leadership Academy
- US Geologic Survey
Writing Process

• Hammered out basic structure in May
• Borrowed some text from 2011 proposal :-)
• Preliminary feedback from department chair and a mentor in May-June
• Big push after mid-July deadlines
• Last edits made just before proposal due date
Closing advice...
If I had to do it again...

• CAREER awards are important but it might help to not think of your project as your life’s work

• Go serve on panels!

• Talk to your program officer

• Write proposals in a way that makes it totally easy to distinguish new work from old

• Include some form of evaluation for each component of the proposal
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• How much will it cost? How long will it take?
• What are the “exams” to check for success?