Bridging the Gaps Between Research and Practice

Frank Wang & Jean Yang
Cybersecurity Factory
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Our Future Runs on Software

But first we need to “solve” security!
State of the Art

Research
- Encrypted databases
- Undo mechanisms
- Program analyses
- Provably secure software

Industry
- Firewalls

The big question: How can we take advantage of research ideas in practice?
This Talk

Academia

Startups
Venture capital
Companies
Policy makers
Consumers

How can we connect researchers to everyone else?
Part I: Motivation for a Security Accelerator
Barriers to Industry Adoption

- **Managers** need to fight status quo.
- **Programmers** need to manage legacy code.

What about the startup route to tech transfer?
Security is no Tindog

The Hot New Silicon Valley Startup

Fun concept. Slick design. Toddler nephew can use it. Integrates with your life.

Startup that Helps Us Build Secure

Technical concept. Verifiable by experts. Requires infrastructure change.
Unique Challenges for Security Startups

• Concept is highly technical.
• No flashy demos.
• Adoption requires client expertise and/or trust.
• Solving a technical problem != building a product.

"A major reason security products fail is because they're made by security people."
- @JustinSomaini on the importance of user experience
Cybersecurity Factory

An 8-week accelerator that gives teams:

- $20,000
- A network
- Office space
- Legal support
- Focused mentorship

Maxwell Krohn
Raj Shah
David Tinq

OKC
Palo Alto Networks
Imprivata
Related Programs

Y Combinator

SUMMER@HIGHLAND

ROUGH DRAFT.VC

DORM ROOM FUND
Part II: Our Pilot Summer
2015 Timeline

- January: Casually floated idea over dinner
- February: Started chatting with Highland
- March: Program approved by Highland and sponsorship with WilmerHale
- April: Recruit teams and mentors
- May: Final planning
- June-August: Pilot program of Cybersecurity Factory!
Our Teams

Aikicrypt: Outsourcing data securely to the cloud.

Oblivilock: Protecting data and metadata in the cloud.
Program Structure

• Really no structure
• Some programming on the legal side
• Weekly check-ins
• Lunches with mentors
Main Value Add: Mentors

Maxwell Krohn
okc

Raj Shah
paloalto
NETWORKS

David Ting
imprivata®
How Teams Spent the Summer

Percentage of time spent

- Talking to customers and working on pitches
- Coding
Part III: Lessons and Thoughts Moving Forward
“I thought it was hard to sell my research. It’s much harder to sell something for money.”

Christopher Fletcher, MIT PhD student, Cybersecurity Factory participant
Biggest Lessons for Teams

• People matter.
  *Networking can drive innovation.*

• People matter.
  *A good product drives conversations.*

• People matter.
  *Finding a target market is crucial.*
Fun Fact: Del Monte Foods is Unexpectedly Hip
Fun Fact: Dentists Don’t Care About HIPAA

Emailing X-rays and records violates HIPAA, but HHS does not audit.
Biggest Lessons for Us

• Getting good teams is crucial.
• Getting good mentors helps a lot.
• Many investors are interested. Seasoned investors know what they are doing.
• We need better ways to evaluate security software.
• Security software is about the customers.
Fun Fact: The Gap Between Academia and Industry Is Real
Long-Term Goals

• Continue running program.
• Commercialize security projects.
• Create awareness among investors, clients, and the public.
• More collaboration and partnership with industry.
• Create community of founders interested in technical security problems.
Cybersecurity Factory 2016

• Bigger and better!
• 10 weeks
• Expand to 4 teams
• Piloting program to work on companies R&D ideas
• More mentors
“I recommend Cybersecurity Factory to all PhD students.”

Christopher Fletcher, MIT PhD student, Cybersecurity Factory participant
Summary: How to Secure Software

1. Ask smart people to come up with technical solutions.
   Connect research with industry.

2. Put solutions into practice.
   Change incentives for security.

3. Iterate.
   Communicate and educate!

@cybersecfactory
cybersecurityfactory.com