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Academic Job Search: My Perspective

Cryptography & Security

- Science of providing Controlled Access to Information
  - "Who learns what," and
  - "Who influences what"
- Goal: Discover Laws of Nature through the Lens of Security & Privacy using Mathematical Tools

Laws of Nature: Examples

- Channel Capacity: Law of Information Throughput

- Circuit Complexity: Cost of Computation

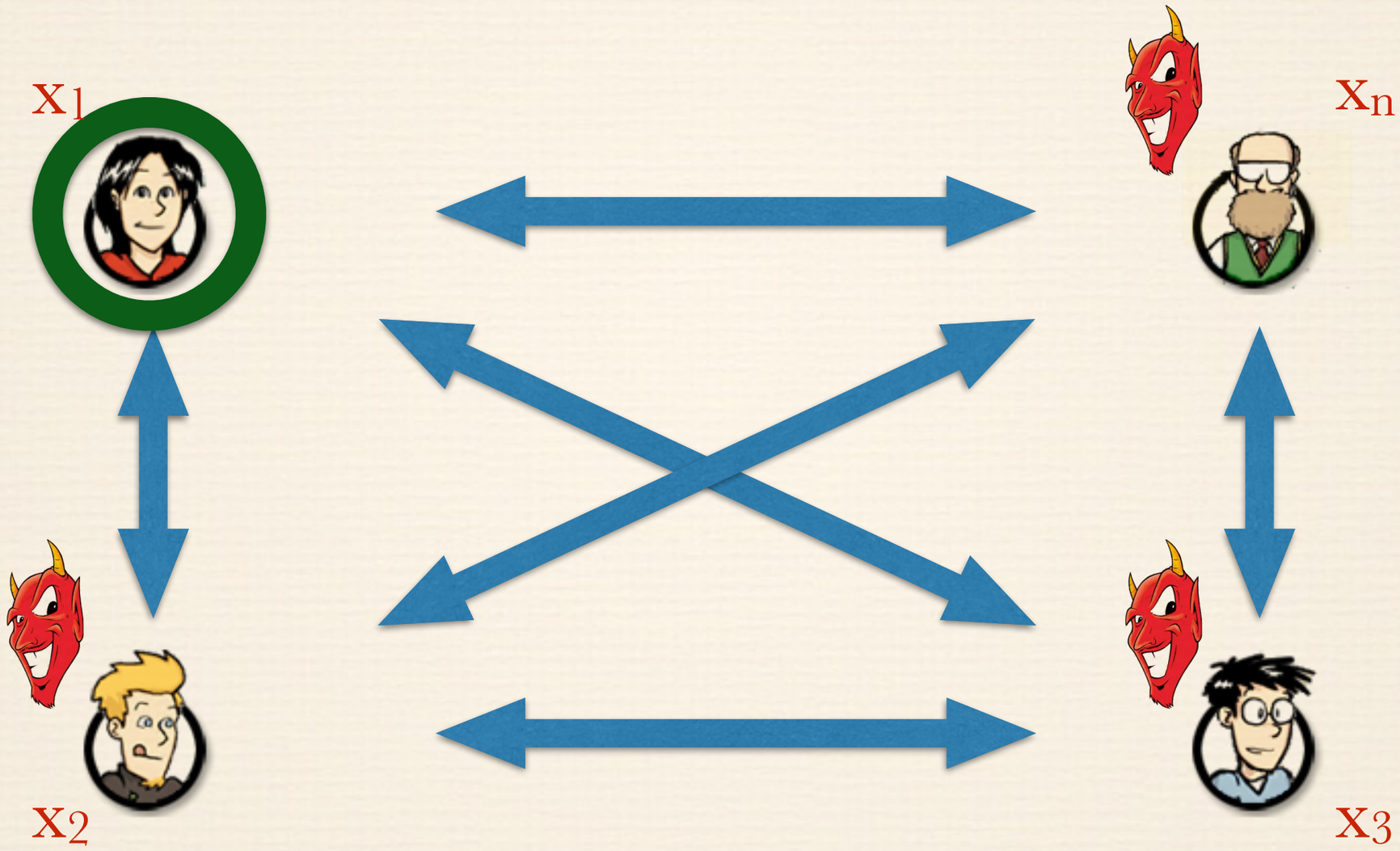
(In)Secure Skies

February 10, 2009: Two satellites, Iridium 33 and Kosmos-2251, collided

Unlikely that Governments will share Location and Trajectory of Military Satellites

Despite this bottleneck, how to resolve the problem?

Example: Secure Computation



Example: Secure Computation

- With: Maximum Resource Efficiency
- Using: Noisy Channels, Secure Hardware, Hardware Tokens, Conservative Computational Assumptions
- Despite: Sophisticated Adversarial Attacks, like Leakage and Tampering

My Perspective & Goal

- Cryptography is founded upon Atomic Components
- Law of "Privacy Throughput"
  - Transmuting various forms of Atomic Components of Privacy at Optimal Rate
- Cost of "Privacy-preserving Computation"
  - Securely Computing using Minimal Atomic Components

Summary

- Understand: Law of "Privacy Cost"
- Closely Correlated with the Practice of Cryptography
  - For example: Secure Computation

My Background

Academic Background

2000-2004 | 2004-2005 | 2005-2011 | 2011-2015 | 2015-Present

2009

Decided to get into Academia

Started in Cryptography

Why Academia?

Reasons

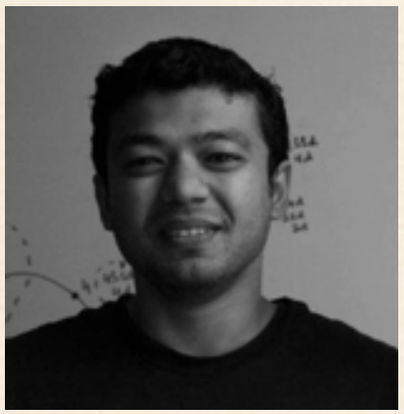
- I love:
  - Puzzles
  - Envisioning and Creating the “State-of-the-art”
  - Training the next generation of Researchers

Preparation

Disclaimer

"Follicular Advantage" remains unscathed!

- My Story





- No Generalizations

- My Assessment: An extremely Typical effort

Highlights

- "The Talk" with your advisor(s)
- Job Announcement Search and Preparations
- Material Preparation
- Communicating with Recommendation Writers
- Personality Enhancements

“The Talk”

- Career Plan
- Planning Recommendation Writers
- Research Vision
- Planning Universities

Job Announcement Search

- Department Rankings
- Computing Research Association (CRA)
- Association for Computing Machinery (ACM)
- Individual Departments and their Websites
- Prepare Spreadsheet

Pre-Job Talks

- Important: Only Technical Talks ending with Visionary Slides
- Invited Talks
- Research Group Talks
- Visiting Departments

Materials

- CV
- Research Statement
- Teaching Statement
- Recommendation Letters

CV

- A Long-term Investment
- Publication Quality & Quantity
- Awards
- Invited Talks

Research Statement

- Describe from “one-mile away”
  - “Kid-who-loves-puzzles” v/s “Visionary”
  - “Bag-of-problems” v/s “Research Vision”
- Unravel Layers
  - 30 sec research summary, 2 min research summary, 5 min research summary
- Perspective & Positioning

Mentoring & Teaching Statement

- A different ball-game
- Be Concrete
- Mentoring: Students and Publications
- Course Proposals: Courses and Syllabus, Online Materials

Recommendation Letters

- Talk to your Recommendation Writers
- Discuss the Universities
- Discuss the Faculty members at Universities
  - Obtain Contacts who can support your application
- Every fact mentioned in the materials covered by at least one recommendation writer

Personality Enhancements

- Any Improvement is “Good Improvement”!

Job Talk Preparation

- Seek Input from people of diverse background
- Practice (a lot)
- Explicit “Positioning of Research Work” and “Collaborative Opportunities”
- Explicit “Vision”

Interview Preparation

- Learn about the person
- Explicit Questions

Support Group

- People really close to you
- Talk
- Talk
- Talk

Thanks