

REU-CAAR: You're Here!

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Cybersecurity Scholars Handbook.

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Auguste: Why are you telling them all that?

Bill: In academia its very important to credit past work!

Purpose of This Talk

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1. Who are the mentors?

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2. What are the projects?

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3. What is expected of you?

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1. Who are the mentors?
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3. What is expected of you?
4. What should you expect of us?
5. Nuts and bolts of how the program works.
6. Advice on how to get the most out of this summer!

REU-CAAR

REU: Research **E**xperience for **U**ndergraduates.

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CAAR: **C**ombinatorics, **A**lgorithms, and **AI** for **R**eal Problems.

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REU: Research Experience for Undergraduates.

CAAR: Combinatorics, Algorithms, and AI for Real Problems.

Discuss Find a topic within CS that this title **does not** cover?

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CAAR: **C**ombinatorics, **A**lgorithms, and **AI** for **R**eal Problems.

Discuss Find a topic within CS that this title **does not** cover?

Systems, **HCI**, **Software Engineering**, anything else?

REU-CAAR: TEAM!

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1. **Classical and Quantum Error Correction:**
Victor A and Phillip F.

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Furong H.
5. **Exploring the Hilbert Geometry:**
Auguste G. and Dave M.
6. **Using Markov Dec. Processes to Mitigate Climate Risk.**
Aviva P.

Admin

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- ▶ **Help with Final Presentations:** Clyde.

REU-CAAR: Very Brief History

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- ▶ Algorithmic Game Theory

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Big change. Projects in the fields above but also

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 - (2) help **Bill** with a lot of stuff.

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(**B**ioinformatics **R**esearch **I**n **D**ata science for **GE**nomics)
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4. We will share some activities with these REU programs

Program Goals and Expectations

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Useful for the future!

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4. Talk to each other in the dorms about your projects!

What the Program Expects of You: Restart

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4. **Connection:** Help connect you to their colleagues, graduate assistants, others.

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First letters spell out **CAMERA**. Better for a Vision REU.

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Credit **Auguste** thought of making the first letters spell words.

**Issues that Probably
Won't Arise
But Need to be
Discussed**

Sexual Harassment and Discrimination

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1. If you feel uncomfortable, seek advice and guidance from others. **Bill**, **Auguste**, or **Furong**. (One of the REU-CAAR mentors) can offer assistance and direct you to campus resources for help. Note that in the United State there is Mandatory Reporting: if a mentor or director hears about a case of sexual harassment, they must report it.

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2. While this slide is about Sexual Harassment and Discrimination, feel free to talk to **Bill.**, **Auguste** or **Furong** about **any** issue, even if it is uncomfortable.

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1. You get a stipend.

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SPACE AGE and **CAMERA**

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its finding whose to **Blame :-)**

Schedule and Activities

First Week++ Talks

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In symbols

$$(\forall p)(\exists m, d)[MENTOR(p, m) \wedge TALK(p, m, d)].$$

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4. Bill will join you for lunch some of the first week.

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3. Research-Every day.

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9. Some of these items may change (e.g., lunches, talks may be a diff day).

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(Is that a paradox? A project for Summer 2024 REU.)

Summary of Projects and People

Victor and Phillipe Quantum Project

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1. Classical and Quantum Error Correction

Victor and Phillipe Quantum Project

1. **Classical and Quantum Error Correction**
2. **Elevator Pitch**

Victor and Phillippe Quantum Project

1. **Classical and Quantum Error Correction**
2. **Elevator Pitch**

Alice wants to send Bob a string $x \in \{0, 1\}^n$. But the channel is noisy! There are ways to send x such that errors will be detected and corrected (if there aren't too many of them.) One way is to send xxx . There are better ways. CLASSICALLY. What if you had QUANTUM methods! Can you do better?

Victor and Phillippe Quantum Project

1. **Classical and Quantum Error Correction**
2. **Elevator Pitch**

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3. **Students** Michael, Cella, Milan

Marine-Eleftheria Translation Project

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3. **Students** Linh, Osama, Grace, Angela

Laxman Parallelism/Clustering Project

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3. **Students** Papa, Mohammad, Andrew

Furong's Fair Decision Making

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3. **Students** Selena, Amy, David

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3. **Students** Zofia, Sally, Daniel, Carlos.

Aviva's Markov Decision for Climate Risk

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Irwin Winkler

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Why am I telling you this?

The Winkler Foundation

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Irwin Winkler has established a charitable foundation that gives money to (a) many worth causes and (b) our REU!

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Adam Winkler is Irwin's son who administers the foundation.

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Also, the last book was a nominee for the **National Book Award**.

Show me the Money!

Where Does the Winkler Money Go?

Things the NSF won't pay for:

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None of this will matter except:

1. Those funded by Google/Zhu or Iribe will be asked to write a letter thanking them. I will be asking this in September.
2. KAUST may ask their students to fill out forms.
3. The local HS students did not get those 100 emails asking for their travel plans.

My Wife Says that if I Lie to You I Must Tell You

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Questions from You?

I welcome questions now and anytime!