

REU-CAAR: You're Here!

William Gasarch-U of MD

Credit where Credit is Due

Origin of this talk

- ▶ A Cybersecurity REU produced a 20-page document **Cybersecurity Scholars Handbook**.
- ▶ Bill G modified this **boring** handbook into a **fascinating** 50-slide talk!

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Samir: Why are you telling them all that?

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

Purpose of This Talk

1. Who are the mentors?
2. What are the projects?
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 Experience for Undergraduates.

CAAR: Combinatorics And Algorithms for Real Problems.

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The Title Encompasses... All of Computer Science!

REU-CAAR TEAM

1. **In Charge:** William Gasarch and Samir Khuller.
2. **Your Mentors:**
 - 2.1 Explainable AI: Celeste P, Sarah J, Randall R, Tudor D.
 - 2.2 Side Channels in the Cloud: Dana D-S
 - 2.3 Diversity in Matching Markets: John D
 - 2.4 Finding Colorings using Opt Techniques: Tom G & Clyde K
 - 2.5 Modeling signals with Deep Neural Networks: Tom G
 - 2.6 Crypto Analysis for Lattice-Based Cryptography: Jon K
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3. **Admin:** Jennifer Arseneault, Adelaide Findlay, Jodie Grey, Sharron McElroy,

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useful for the future!

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4. **Connection:** Help connect you to their colleagues, graduate assistants, others. You will learn as much from them (or more!) as you do from your research tasks!

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7. **Be Bold/Curious:** Be Bold and Curious!
8. **Respect:** Resolve issues quickly, directly, and respectfully.

Sexual Harassment and Discrimination

(My second least favorite topic.)

1. Ask other REU members about their perceptions of the behavior. If their perceptions are similar then next step.
2. Speak directly to the individual in a respectful manner. This will let you immediately know if the *different treatment* is a misunderstanding or a major problem. Keep in mind the potential personal consequences of confronting the individual.
3. If you feel uncomfortable, seek advice and guidance from others. Bill Gasarch or Samir Khuller can offer assistance and direct you to campus resources for help.
4. While this slide is about Sexual Harassment and Discrimination, feel free to talk to Bill Gasarch or Samir Khuller about *any* issue, even if it is uncomfortable.

First Week + 3 days- Talks

1. Mon 10:00-12:00 THIS TALK!
2. Tue 10:00-12:00 Bill **The Muffin Problem**
3. Wed 11:00-12:00 Samir **Clustering and Large Ind Sets**
4. Thu 11:00-12:00 Sarah **Explainable AI**
5. Fri 3:00-4:00 John **Diversity in Matching Markets**
6. Mon 3:00-4:00 Aarthi **Trial and Error Graph Props**
7. Tue 3:00-4:00 Dana **Side Channels**
8. Fri 11:00-12:00 Jon **Lattice Based Crypto**

First Week - Lunch

1. Monday 12:00-1:00 lunch in AVW.
2. This lunch you will play telepictionary!
3. Tue,Wed,Thu,Fri- Lunch in the union from your meal card.
4. Bill will join you for lunch some of the first week.

First Week

1. Red Tape in the morning (hopefully ends Wed).
2. Red Tapes some afternoons (hopefully ends Wed).
3. Research-Every afternoon.

Most Weeks

1. Get here by 10:00AM goto your projects room.
2. Research 10:00-12:00 (approx)
3. Lunch 12:00-1:00 (approx). MONDAY lunch AVW
4. Research 1:30-4:00.
5. Talks on Wednesday afternoons.
6. Every other Friday you get your paycheck!
7. At night talk about
**Explainable Side Channels for Diverse Colorings
Modelled by Crypto Data for Graph Properties**
8. On your own on weekends— Explore Washington DC!

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3. Samir will take you hiking (possibly June 9).

Other Things We Will Do

1. Field Trip at Spy Museum (Prob a Monday in July)
2. Lunch where we discuss How to do Bad Science.
3. REU-Salisbury joint day July 25.
4. Final presentation Aug 8,9.
5. Game Nights with Pizza! (one or two or three)
6. Unexpected things will happen! Always expect the unexpected! (Is that a paradox?)

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Discuss- what do you think is my least favorite topic?

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What is 'your end of the deal':

Discuss.

Celeste-Sarah-Randall-Tudor Explainable AI

1. Nitin Balachandra
2. Josh Twitty
3. Chris Alexander

Dana's Side Channels

1. Michael Davinroy
2. Kevin Kulda
3. Ian Rackow (HS student)

John's Diversity (2 projects?)

1. Ahmed Albahhar
2. Darshan Chakrabarti
3. Naveen Dursula (HS Student)
4. Naveen Raman (HS Student)
5. Yuhao Wan

Tom and Clyde's Coloring Project

1. Qiran Dong
2. Daniel Hofman
3. Grace Harper

Tom's Modeling Project

1. Lara Shonkwiler
2. Kathleen Morrison
3. Xinyi Wang

Jon's Crypto (2 projects?)

1. Eric Brigham
2. David Van Cleve
3. Daniel Hathcock
4. Jeremy Kleitman
5. Jennefer Maldondo
6. Benjamin Sela
7. Matthew Soulanile

Samir's Approx

1. Laurel Newman
2. Sam Estep

Samir's Clustering

1. Michael Zlatin
2. Tanvi Bajpai

Aarthi's Trial

1. Thomas Schneider
2. Aditya Saraf

HS Students

1. There are 22 HS students who will be joining us on some activities.
2. The number 22 might change as some drop out.
3. Bill G is mentoring 14, Clyde 3, Tom G 2, Dana 1, Samir 1.
4. Projects: Factoring, Randomized Algorithms, Muffins, Can't Stop Game, Hat problems

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Mentors need to give more direction

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Mentors need to give more direction
One of our Teamates isn't doing his Part

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8. The Winkler Foundation. **Who are they?**

Goldman Sacks

Bill got his PhD from Harvard in 1985 with Advisor Harry Lewis. At Harry's 70th Birthday Conference Bill ran into a student he had TAed named Marty.

Bill: So Marty, what are you up to?

Marty: I'm the Chief Financial Advisor for Goldman Sacks.

Bill: Can you spare some money for my REU program?

Marty: Sure.

Bill: Gee, fund raising is easier than I thought!

Irwin Winkler

Bill Gasarch's Mother is Pearl (Nee Winkler) Gasarch

Pearl Gasarch's Brother is Irwin Winkler

Irwin Winkler is a produce in Hollywood.

1. Produced 55 movies
2. Directed 7 movies
3. David Selznick Lifetime achievement award
4. Produced **Rocky++**, **Goodfellows**, **Creed**

Why am I telling you this?

The Winkler Foundation

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Where Does Goldman Sacks and Winkler Money Go? To Lunches and other things that NSF won't pay for.

Questions from You?

I welcome questions now and anytime!