NEW YORK INSTITUTE OF TECHNOLOGY

CAE IN CYBERSECURITY COMMUNITY

Retro Range Pilot Program

Creating Educational Cyber Range Environments from Refurbished Equipment

2024 CAE Community Symposium

Presentation by Michael Nizich, PhD, CISSP

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Academic Programs

Computer Science, B.S. – Network Security Concentration

Information Technology, B.S.

Cybersecurity, M.S.

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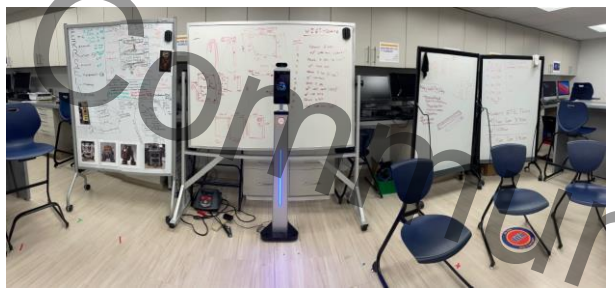

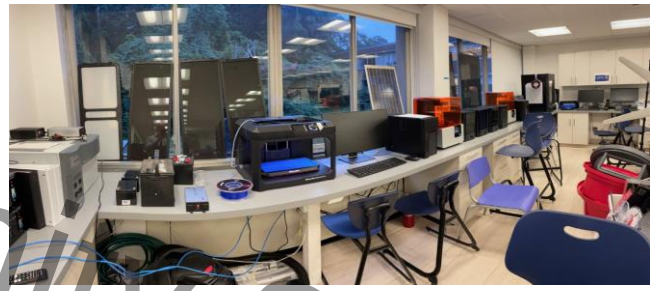

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Heart Beat ID

National Aeronautics and Space Administration

NASA

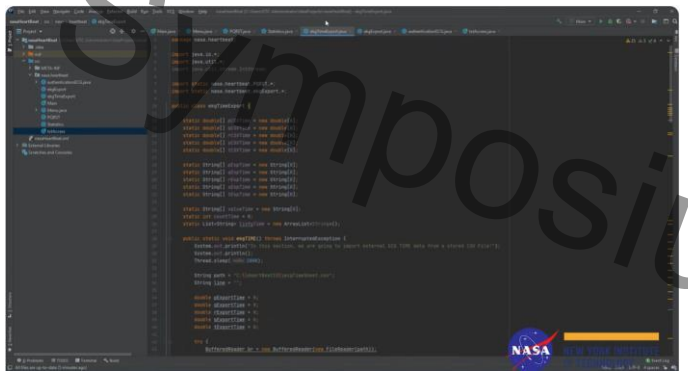
TECHNOLOGY SOLUTION

Health, Medicine and Biotechnology

APPLICATIONS

The technology has several potential applications:

- Identity Verification
- Justice/Law Enforcement
- Mobile Biometrics
- Banks and financial institutions
- Network Login Solution
- PC/Laptop Security
- Time and Attendance
- Healthcare Biometric
- Logical Access Control
- E-commerce and Web Applications
- Homeland Security / Airports / National ID Documents



NYIT Retro Range Program - NRRP

Concept Origins

- High School faculty and students have demonstrated an interest in, and a need for, hands-on networking and cybersecurity training
- High Schools do not always provide a safe and isolated computer network for faculty and students to gain this experience
- Many CAEs already perform outreach to local and regional High Schools currently
- Most CAEs have college admissions departments that usually have an existing outreach program and associated school contacts
- Most colleges usually have a technology lifecycle program for replacing and retiring computer hardware on a scheduled basis

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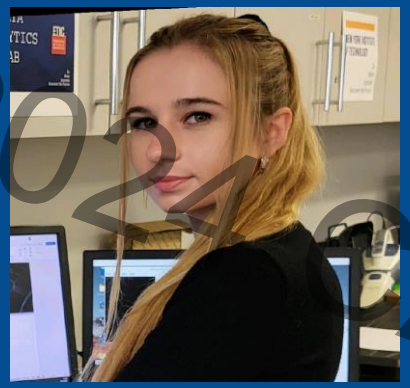
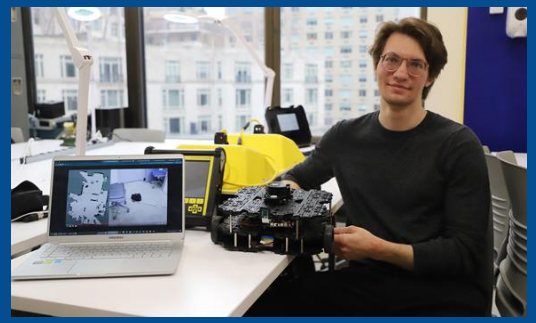
NRRP Model





College Retires Computer Equipment

CAE Cyber/CySP Students Reformat/Create Cyber Range Based off Network Design Specs

CAE Cyber/CySP Students Create Curriculum for 9-12 Faculty and Students

Both on-site and virtual training sessions are set up with faculty and students for hands-on training by CAE Cyber/CySP students

Equipment is donated/transferred and delivered to School and network is setup in designated and supervised location

Program is re-run each semester with new CAE students and both current and new high schools

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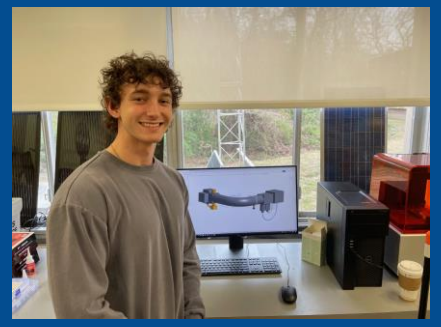
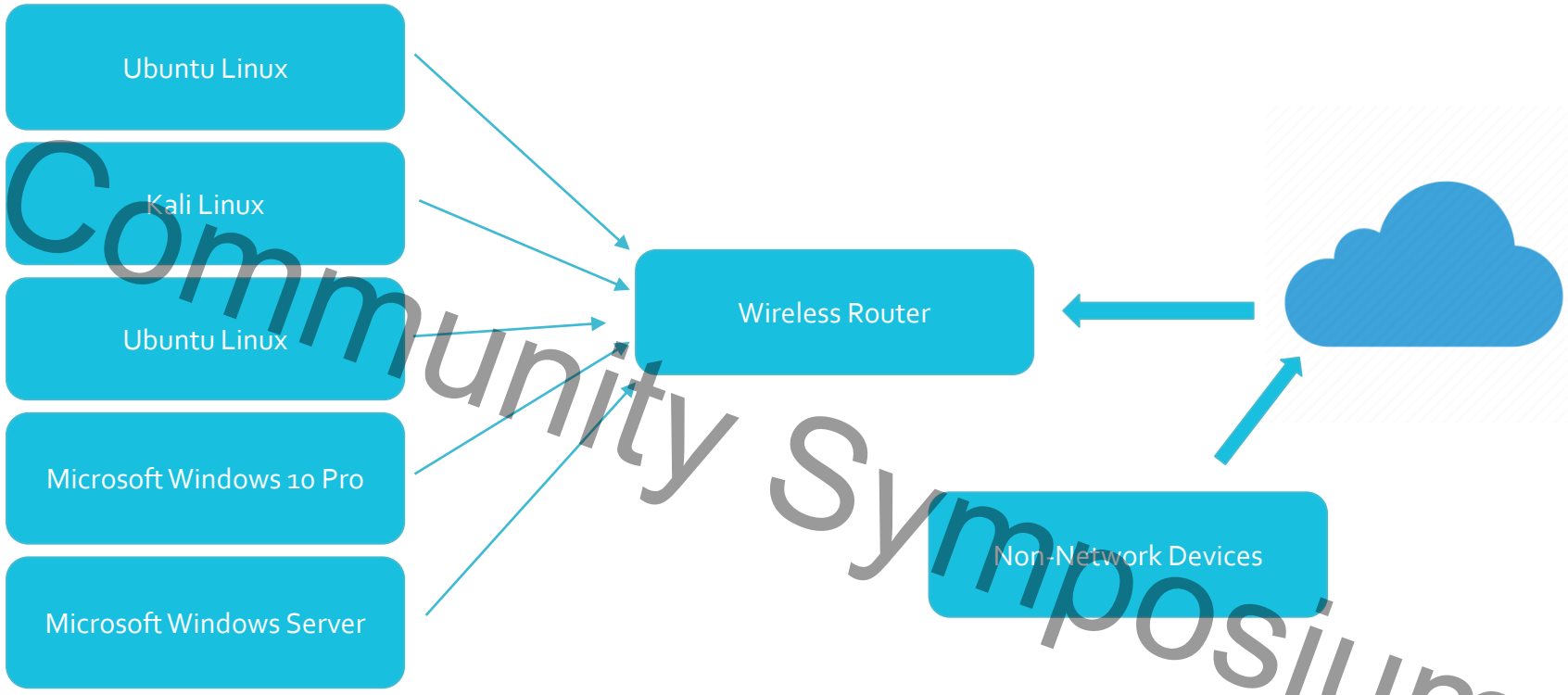
NRRP Range Design





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NRRP - Implementation

Implementation Process

- Contact IT and find out next retirement cycle
- Secure 5 PCs, monitors, keyboards, mice, patch cables
- Secure windows licenses from IT
- Format and place operating systems on PCs
- Configure network to pre-defined specs
- Place any and all files for required curriculum on PCs
- Contact appropriate high school contact to discuss program
- CAE Cyber students should be involved and responsible during every phase
- Students to deliver system and begin work with faculty and students

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Pilot Success

Island students tuned into cybersecurity

Pilot program is unique to the district

BY JULIE LANE | STAFF WRITER

Thanks to a part-time Island resident with technical expertise and a willingness to engage with Shelter Island School, a pilot project is underway teaching students about computer networking and cybersecurity.

Michael Nizich, Ph.D., is an associate professor of computer science and cybersecurity at the New York Institute of Technology (NYIT) and director of the entrepreneurship and technology innovation center there. He also leads a program designated and supported by the National Security Agency and Department of Homeland Security.

He splits his time between the Island and a house in Oakdale. He had a job years ago that first brought him to the Island and said he "fell in love with it."

Mr. Nizich had been speaking with Superintendent Brian Doelger, Ed.D., about his pilot program and the idea of making the it available to Shelter Island students. Shelter Island is the only pilot school up and running right now, Mr. Nizich said. But two more networking and cybersecurity setups are being configured, although no schools have yet been identified to participate in the program.

"Shelter Island School District becomes a lighthouse for other schools to look to as a leader in fostering cybersecurity education through hands-on, high-impact experiential learning," he said.

For a high school to receive the dedicated training network and to partner with college faculty and NYIT students using remote training via Zoom, results in "fostering a very exciting and dynamic learning experience," Mr. Nizich said.

The students practice skills using equipment that was scheduled to be replaced at the college and is re-purposed for use by high school students.

Cybersecurity students at the college helped to reconfigure the machines into what is called a "Cyber Range" or "Cyber Sandbox." The result is basically to make the equipment a dedicated learning system on which

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Next Steps

- Streamline the acquisition & assembly process
- Increase/improve on HS relationships & contacts
- Create a schedule for recurring training sessions
- Create an onboarding process for new cybersecurity students
- Create an onboarding process for new high schools
- Implement classroom teacher certification program

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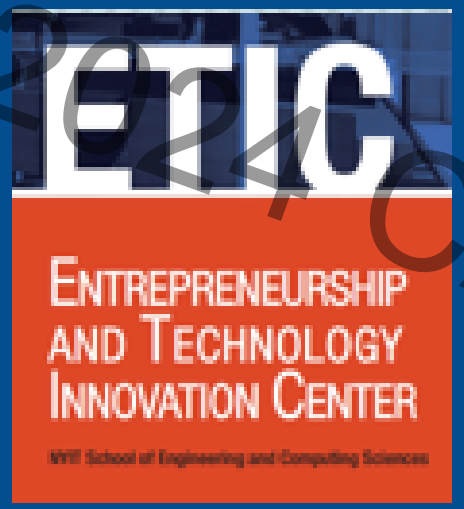

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Thank You!

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