

Cybersecurity Operation Program at UofSC

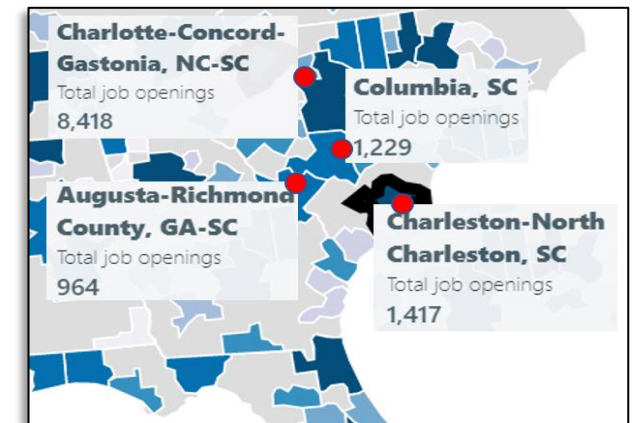
Jorge Crichigno
Department of Integrated Information Technology (IIT)
College of Engineering and Computing
University of South Carolina

USC's ROTC
May 7, 2021

ONR's Cyber Project – July 2020-Dec 2021

- “Enhancing the Preparation of Next-generation Cyber Professionals” (2020)
- South Carolina cybersecurity needs
 - NIWC Atlantic, SRNL, Fort Jackson, Shaw Air Force Base, private industry
- Recruiting the American military's cyber force is more difficult than ever
 - DoD has been struggling to hire more than 8,000 cyber positions (2018)¹
 - Shortage of cybersecurity professionals
- The College of Engineering and Computing is addressing the workforce needs:
 - Encourage STEM, **ROTC** students to obtain a minor in IT
 - Undergraduate applied research
 - Private cloud
 - Collaboration among industry, government, education institutions

Cybersecurity job openings in four metro areas near Columbia, Feb. 2020



1. J. Lynch, “Inside the Pentagon’s Struggle to Build a Cyber Force,” Fifth Domain publication, October 29, 2018. Online: <https://tinyurl.com/yyelqomp>

ONR's Cyber Project

1. Minor in IT – Cyber specialization

- Option to earn DoD's approved baseline certificates for Information Assurance Technical (IAT)
- Self-contained specialization; no pre-req for other STEM majors / **ROTC**

2. Undergraduate applied research

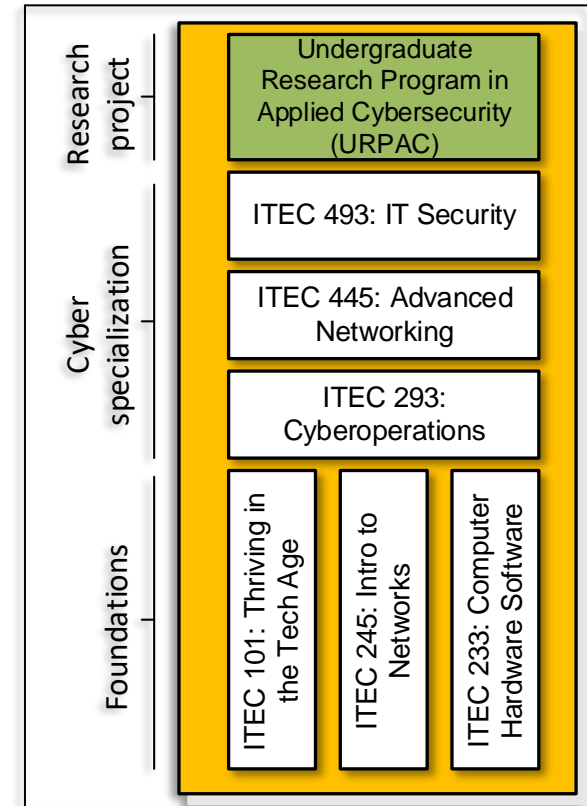
- CEC faculty, graduate student mentors
- Advisory entity by NIWC Atlantic, project guidelines

3. Private cloud with professional tools and platforms

- Hands-on applied research with physical and virtual equipment

4. Collaboration

- Partnership with Intel, Cisco Systems, Palo Alto Networks, VMware, Juniper



Minor in IT and undergraduate research

ONR's Cyber Project

- DoD's Information Assurance (IA) workforce is classified in IA technical (IAT):
 - Level 1 (IAT 1): Computing environment information assurance
 - Level 2 (IAT 2): Network environment information assurance
 - Level 3 (IAT 3): Enclave, advanced network & computer information assurance
- DoD also defines roles of Cybersecurity Service Provider (CSSP)
- It requires partnership
 - Cisco Systems, Palo Alto Networks, VMware, Juniper, Intel

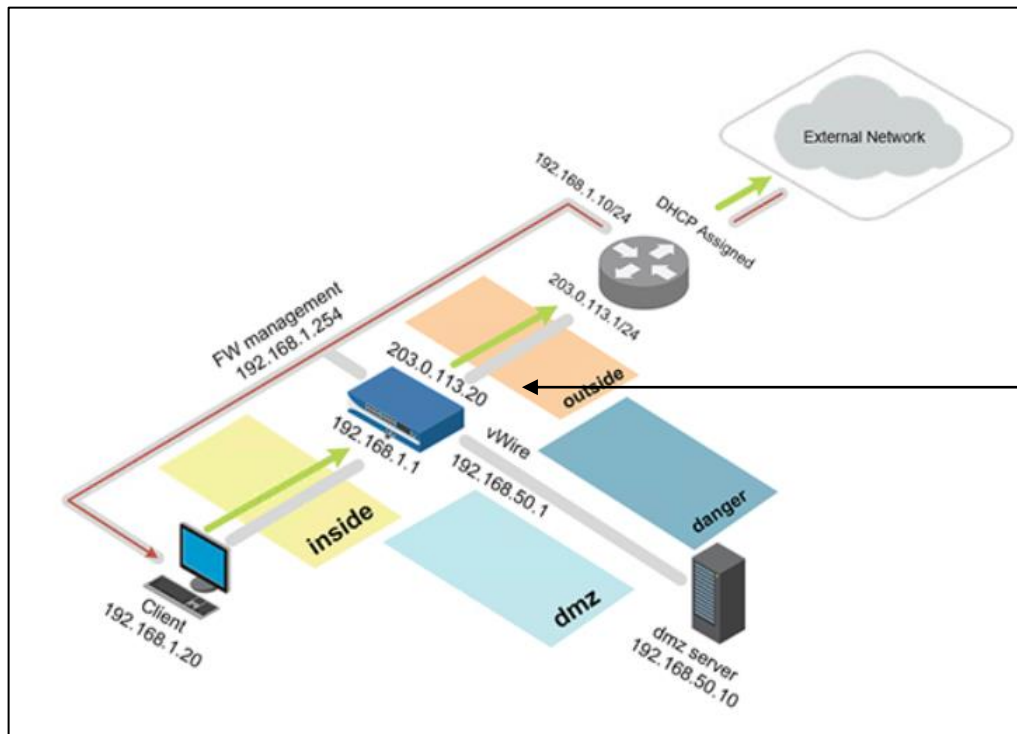
| Course | IAT 1-2 | CSSP Analyst | CSSP Incident Responder | Security Plus | NICE framework Objectives |
|--------------------------------|---------|--------------|-------------------------|---------------|---------------------------|
| Intro to Computer Security | | | | ✓ | ✓ |
| Cybersecurity Operations | | ✓ | ✓ | | ✓ |
| Intro to Networks and Security | ✓ | ✓ | ✓ | | ✓ |
| IT Security for Managers | | | | ✓ | ✓ |
| Advanced Networks and Security | ✓ | ✓ | ✓ | | ✓ |

NICE: National Initiative for Cybersecurity Education (NIST)

ONR's Cyber Project

- Collaboration

- Applied teaching and research -> professional tools, platforms, market validation
- Cisco Systems, Palo Alto Networks, VMware, Juniper, Intel



Next-generation Firewall Virtual Machine + licenses

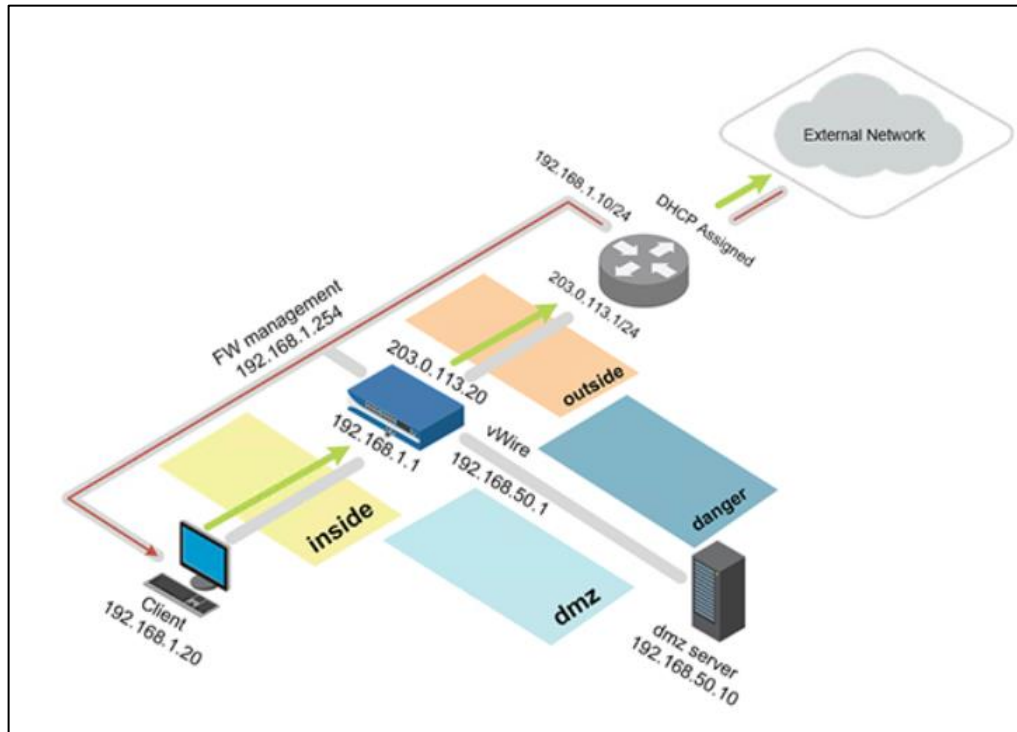
Pod deployed in private cloud

ONR's Cyber Project

- Collaboration

- Applied teaching and research -> professional tools, platforms, market validation
- Cisco Systems, Palo Alto Networks, VMware, Juniper, Intel

- ✓ Bachelor's degree
- ✓ IAT
- ✓ Theory
- ✓ Hands-on expertise Palo Alto



Pod deployed in private cloud

careerbuilder.com/jobs?keywords=FIREWALL&location=&page_number=2

CAREERBUILDER® We're Building For You™

Jobs Upload/Build Resume Salaries & Advice

Firewall in US

1,214 Jobs Found

Cybersecurity Systems Engineer - Palo Alto Firewall
Base-2 Solutions, LLC | Washington, DC | Full-Time

Job Details Company Overview

Required Security Clearance: Top Secret/SCI

8570 Category Requirement: IAT Level II

8570 Specialist Requirement: None

Travel: None

Potential for Teleworking: No

Schedule: Full Time

City: Washington

3 DAYS AGO
IT Project Manager
ComTec | TX - Austin | Full-Time
\$80k - \$125k/year
Easy Apply

6 DAYS AGO
Senior Network Engineer
Blackstone Technology Group, Inc | CO - Denver | Full-Time
\$100k - \$145k/year

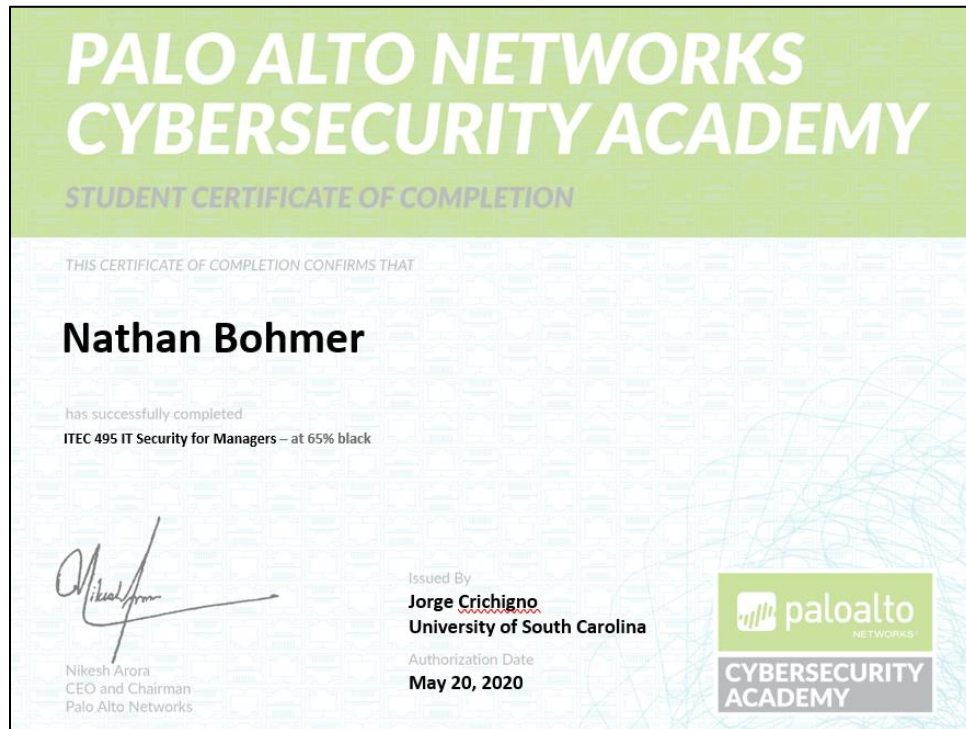
Job search

ONR's Cyber Project

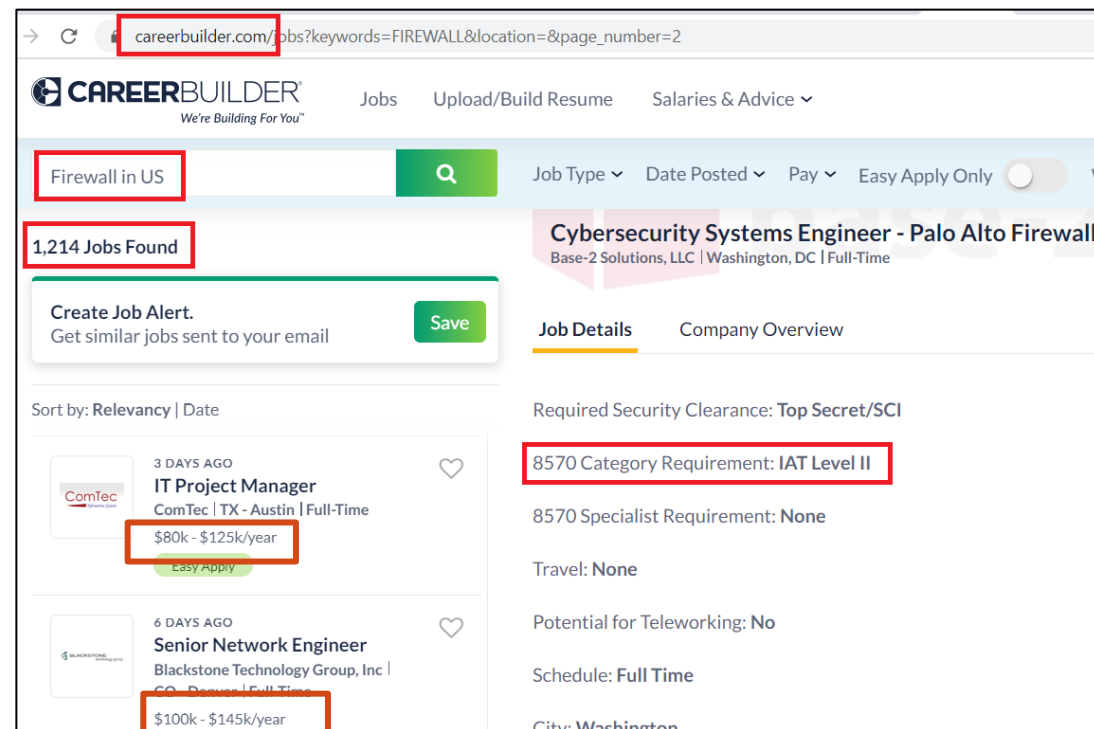
- Collaboration

- Applied teaching and research -> professional tools, platforms, market validation
- Cisco Systems, Palo Alto Networks, VMware, Juniper, Intel

- ✓ Bachelor's degree
- ✓ IAT
- ✓ Theory
- ✓ Hands-on expertise Palo Alto



Additional credentials



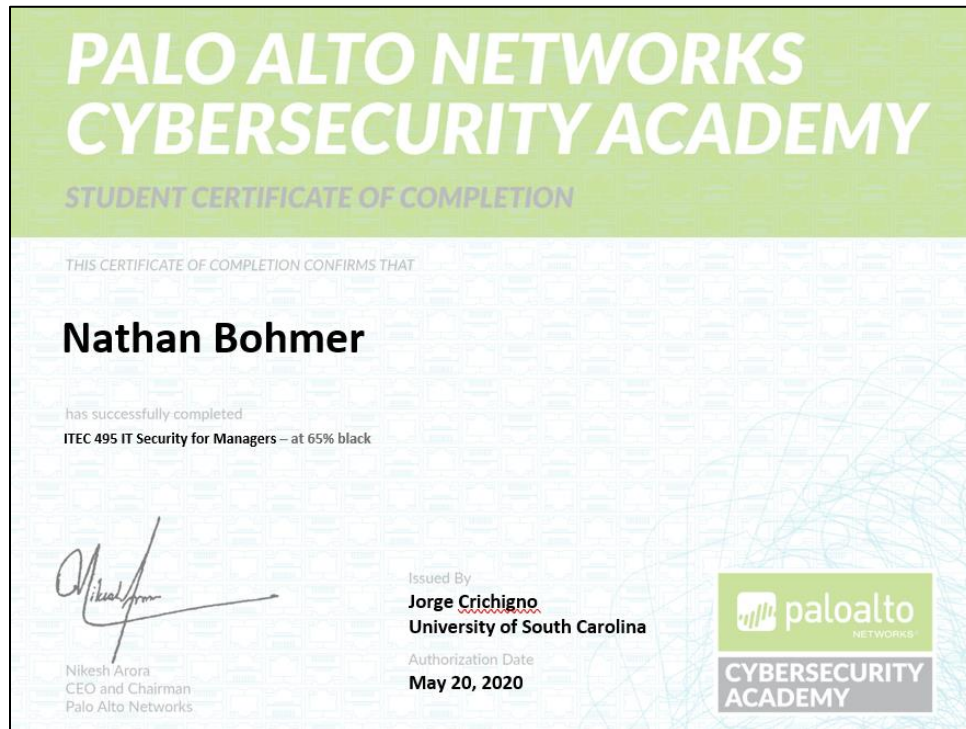
Job search

ONR's Cyber Project

- Collaboration

- Applied teaching and research -> professional tools, platforms, market validation
- Cisco Systems, Palo Alto Networks, VMware, Juniper, Intel

- ✓ Bachelor's degree
- ✓ IAT
- ✓ Theory
- ✓ Hands-on expertise Palo Alto



Additional credentials



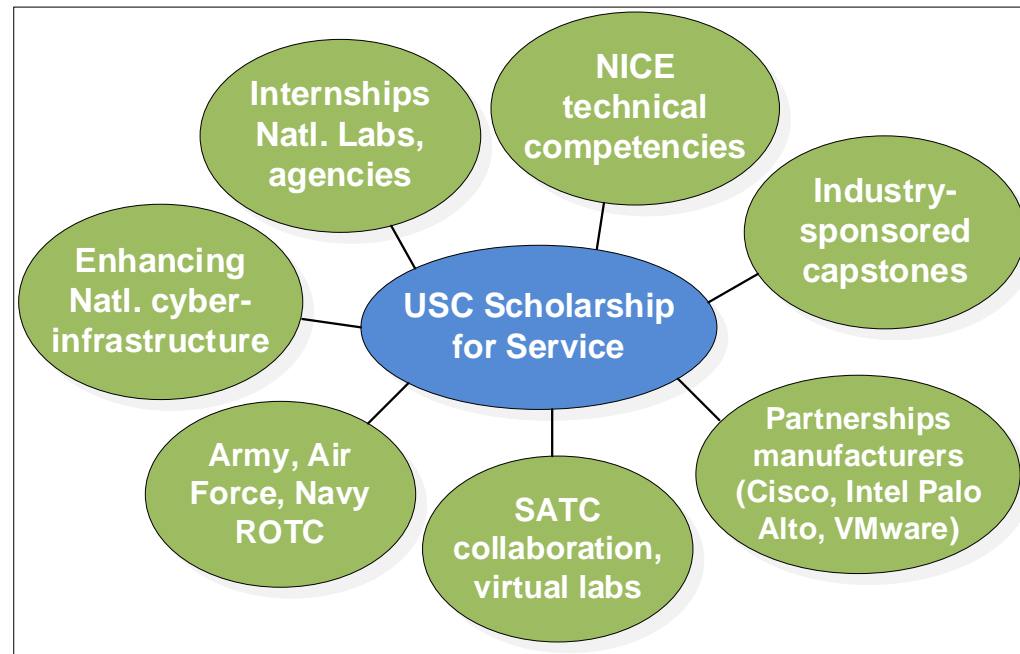
UofSC's ROTC

Scholarship for Service

- UofSC plans to extend the current ONR project to a Scholarship for Service (SFS) program
- Support of two years (BSc) and three years (PhD) of stipends, tuition, and allowances for students in cybersecurity
 - \$25,000 per year for undergraduate students
 - \$34,000 per year for graduate students
- Support of two years (BSc) and three years (PhD) of stipends, tuition, and allowances for students in cybersecurity
- Students must complete a summer internship and obtain a permanent placement (after graduation) **in an executive agency (as defined in 5 U.S. Code § 105)**

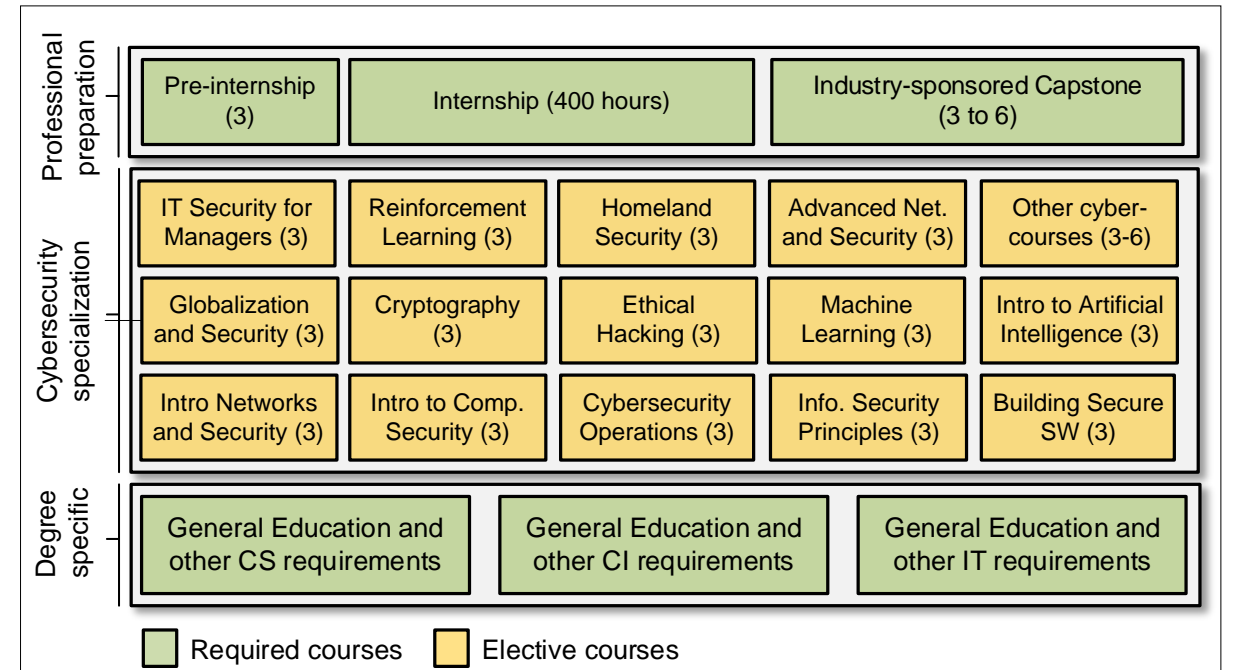
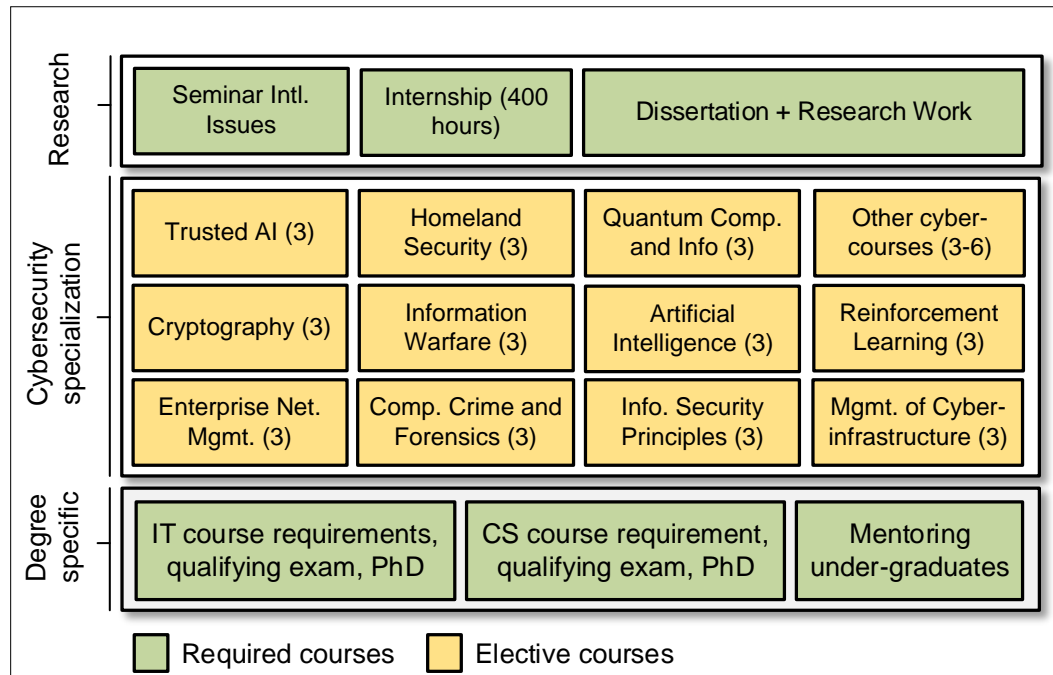
Scholarship for Service

- Elements of the project



Scholarship for Service

- Program



Scholarship for Service

- Cybersecurity courses with embedded DoD's Approved 8750 baseline certifications

| Course | IAT 1-2 | CSSP Analyst | CSSP Incident Responder | Security Plus | NICE framework Objectives |
|--------------------------------|---------|--------------|-------------------------|---------------|---------------------------|
| Intro to Computer Security | | | | ✓ | ✓ |
| Cybersecurity Operations | | ✓ | ✓ | | ✓ |
| Intro to Networks and Security | ✓ | ✓ | ✓ | | ✓ |
| IT Security for Managers | | | | ✓ | ✓ |
| Advanced Networks and Security | ✓ | ✓ | ✓ | | ✓ |

NICE: National Initiative for Cybersecurity Education (NIST)

Scholarship for Service

- Program

