

17TH ANNUAL CYBERSECURITY DAY AT IUP

OCTOBER 29, 2024

9:00 AM - 4:00 PM

**HUB - OHIO ROOM, 319 PRATT DRIVE
INDIANA, PA 15705**

FEATURING:

**Recognized security experts
from government, academia,
and industry.**

**FREE AND OPEN TO ALL. VISIT
[BIT.LY/IUP-CSDAY](https://bit.ly/iup-csday) OR SCAN THE QR
CODE FOR MORE INFORMATION.**



**THE 2024 CYBERSECURITY DAY IS
PROUDLY SPONSORED BY PC4A, IUP
AND MILLENNIAL SOFTWARE**

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Consortium Cooperative Agreement

IUP

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GUEST SPEAKER TITLES AND ABSTRACTS

Title: The Convergence of Cyber, Information Warfare, and AI

Presenter: Bryant Wysocki

Abstract: The convergence of cyber, information warfare, and artificial intelligence (AI), is reshaping global power competition by integrating AI-driven capabilities into cyber operations and information campaigns. This fusion enables activities like automated threat response, adaptive cyber maneuvers, and AI-powered misinformation, that significantly enhance the impact of hybrid warfare strategies.

As these technologies blur the lines between competition and conflict, they present societal challenges and raise critical ethical and legal questions. This talk will explore the implications of this convergence, highlighting the need for new defense approaches and international norms to address the evolving landscape of AI-enhanced activities.

Title: The Software Reverse Engineering Skillset

Presenter: Damon Smith

Abstract: Seasoned software reverse engineers at the National Security Agency draw from a wide and esoteric set of skills to support the NSA's cybersecurity and foreign intelligence missions. Bringing new reverse engineers up to speed can take months or years.

This talk considers the skills and competencies an aspiring reverse engineer might focus on to improve their readiness for a career in cybersecurity and the intelligence community.

Title: The Evolution of Social Engineering in Cybersecurity

Presenter: Jon Roumfort

Abstract: This presentation examines the dynamic evolution of social engineering. With traditional security vulnerabilities becoming more short-lived and less effective to exploit, attackers have found leveraging vulnerabilities in human behavior through social engineering to be an easier and more profitable alternative to more complicated and short-lived attacks on technology itself. Social engineering has become the most prevalent and damaging cyber attack today and it will only increase with the help of artificial intelligence.

This presentation will examine several types of past and current social engineering techniques, explore emerging trends, and go over ways to help prevent the attacks.

Title: Growing the Next Generation of Cyber Talent

Presenter: Matt Isnor

Abstract: The increasing prevalence of cyber threats highlights the critical need for the Department of Defense to have a capable and ready cyber workforce. Developing such a workforce involves a multi-disciplinary approach across policy, program development, strategy, data analytics, and data science that will drive innovation and development across the cyber workforce.

This presentation will provide information on the DoD CIO's by Cyber Workforce Strategy Implementation Plan, DoD Cyber Workforce Framework, DoD 8140 Cyberspace Workforce Management and Qualification Program, Academic Outreach, and Cyber Excepted Service.

Through targeted initiatives, investment in personnel, and a commitment to continuous development activities, we can build and sustain an agile, capable, and ready cyber workforce.

Title: Navy Cyber Science and Technology

Presenter: Joey Mathews

Abstract: In 1915, American inventor Thomas Edison opined, "The Government should maintain a great research laboratory to develop guns, new explosives, and all the technique of military and naval progression without any vast expense." This statement led to the creation of the Naval Research Laboratory in 1923. One hundred years later, NRL has changed the way the military fights and tilted the world's balance of power on at least three occasions with the first US radar, the world's first intelligence satellite, and the first operational satellite of the Global Positioning System.

NRL's Information Technology Division carries out research and development in the collection, transmission, assurance, and processing of information to provide Naval and joint warfighting forces with the means to achieve and maintain information dominance.

In this talk, I will discuss factors which motivate Naval science and technology investments, cybersecurity considerations for Navy platforms, and opportunities for students to engage with and contribute to the Navy's innovation ecosystem.

Title: From Campus to Career: Making Moves, Not Mistakes

Presenters: Jon David and Lohan Zelle

Abstract: Undergraduate students are generally motivated, self-educating, and technical, but may need assistance in securing and maintaining industry employment after graduation.

This presentation will provide students with résumé and interview tips, do's and don'ts for their first year of employment, and personal anecdotes on mistakes recent graduates tend to make. In addition, incident response stories will be shared for students to gain first-hand knowledge of real-world situations.

ABOUT CYBERSECURITY DAT AT IUP

Each year since 2008, the IUP Institute for Cybersecurity in conjunction with IT Support, has hosted Cybersecurity Day during the month of October to celebrate National Cybersecurity Awareness Month.

Nationally recognized security experts from government, academia, and industry are invited to present technical, or employment-focused topics to students, faculty, staff, and the community. Topics in previous years include incident response, cyber crime, cyber forensics, machine learning, privacy, current cybersecurity challenges, and many more.

Cybersecurity Day at IUP is always free and open to the public, and all are invited to attend.

For complete details on previous Cybersecurity Day activities, visit bit.ly/IUP-CSDAY

Please contact Dr. Waleed Farag, Director, Institute for Cybersecurity, at farag@iup.edu with questions.



THE 17TH ANNUAL CYBERSECURITY DAY AT IUP

OCTOBER 29, 2024

OHIO HUB
IUP MAIN CAMPUS



CYBERSECURITY DAY AT IUP

TIME SLOT	SESSION TITLE AND PRESENTER
9:00 AM to 9:05 AM	Introduction to the 17th Annual Cybersecurity Day at IUP Waleed Farag, Director, IUP Institute for Cybersecurity, Professor of Computer Science
9:05 AM to 9:10 AM	Opening Remarks Lara Luetkehans, IUP Provost and VP for Academic Affairs
9:10 AM to 9:20 AM	Event History, ICS Work, Recent Achievements, and Logistics Waleed Farag, Director, Institute for Cybersecurity, Professor of Computer Science
9:20 AM to 10:05 AM	The Convergence of Cyber, Information Warfare, and AI Bryant Wysocki, Technical Advisor for CSISRT, US Air Force and Space Force
10:15 AM to 11:00 AM	The Software Reverse Engineering Skillset Damon Smith, Technical Director for Computer Network Operations, National Security Agency
11:10 AM to 11:55 AM	The Evolution of Social Engineering in Cybersecurity Jon Roumfort, CISSP, IUP Senior Security Analyst
11:55 AM to 1:00 PM	Lunch Break
1:00 PM to 1:05 PM	Welcome Back and Afternoon Logistics Waleed Farag, Director, IUP Institute for Cybersecurity, Professor of Computer Science
1:05 PM to 1:10 PM	President's Remarks Michael Driscoll, President, Indiana University of PA
1:10 PM to 1:55 PM	Growing the Next Generation of Cyber Talent Matt Isnor, Program Lead, DOD Cyber Workforce Development Branch, US Department of Defense
2:05 PM to 2:50 PM	Navy Cyber Science & Technology Joey Mathews, Superintendent of the Information Technology Division, US Naval Research Laboratory
2:50 PM to 3:05 PM	Afternoon Break
3:05 PM to 3:50 PM	From Campus to Career: Making Moves, Not Mistakes Jon David, Managing Director/Co-Founder, NR Labs, and Logan Zelle, Security Director, NR Labs
3:50 PM to 4:00 PM	Event Conclusion Waleed Farag, Director, IUP Institute for Cybersecurity, Professor of Computer Science

BIOGRAPHICAL INFORMATION ON GUEST SPEAKERS



Bryant Wysocki, Technical Advisor for CSISRT, US Air Force and Space Force

Bryant Wysocki, a senior-level executive, is the technical advisor for CSISRT for the US Air Force and Space Force. Bryant provides technical oversight of these areas for the department and advises senior leadership. He holds a PhD in electrical engineering from Cornell University.



Damon Smith, Technical Director for Computer Network Operations, National Security Agency

Damon Smith has been programming and reverse engineering software for NSA since 2005. He has a master's in information security from Carnegie Mellon University and a bachelor's in computer science from Dartmouth College. Damon has worked for NSA in Maryland, overseas, and, since 2017, in Colorado.



Jon Roumfort, CISSP, IUP Senior Security Analyst

Jonathan Roumfort is a senior security analyst in IT Services at Indiana University of Pennsylvania and serves as a lead in the ITS Cybersecurity Leadership Team. Jonathan has been employed at IUP for over 25 years, where he has managed IT security, enterprise systems, and networking. He has served IUP as a senior security analyst for almost 22 years and is on IUP's Institute for Cyber Security steering committee. Jonathan is a member of various security groups and has been an ISC2 Certified Information Systems Security Professional since 2010.



Matt Isnor, Program Lead, DoD Cyber Workforce Development Branch, US Department of Defense

Matt Isnor an expert in the federal cyber workforce with DoD/CIO and is the former Cyber Mission Force program lead for training for US Cyber Command. He currently is the program lead for the development and refinement of standardizing the cyberspace workforce through work roles included in the DoD Cyberspace Workforce Framework. He is also responsible for leading the effort in DoD CIO to create the 8140 Policy Series, which sets the qualification program for all of DoD. Another area is that he is one of the cochairs with NSA and USCYBERCOM to lead the development of Cyber Institutes at each of the senior military colleges. Isnor holds a master of business administration with a concentration in information systems from Hawaii Pacific University and a master's of cybersecurity from Webster University.



Joey Mathews, Superintendent of the Information Technology Division, US Naval Research Laboratory

Joey Mathews is the superintendent of the Information Technology Division at the US Naval Research Laboratory. He leads a broad-based program of research and development spanning artificial intelligence and autonomy, networking and communications, information operations, high-assurance systems and cyber warfare, knowledge management and decision support, and computational science.



Jon David, Managing Director & Co-Founder, NR Labs

Jon David, a former director at Mandiant, boasts over 15 years of extensive experience in both private and DoD cybersecurity sectors. His expertise lies in enabling organizations to comprehend their threat landscape, strategically prioritize defenses, and effectively mitigate exposure to malicious threats. Throughout his career, David has played a pivotal role in aiding numerous enterprises across diverse industries in identifying and addressing vulnerabilities within complex environments. Drawing from this wealth of experience, he intimately understands the unique challenges each industry encounters when safeguarding its digital ecosystems.



Logan Zelle, Security Director, NR Labs

Logan Zelle is a security director with over eight years of experience. He has provided guidance and expertise to hundreds of federal clients, nonprofit organizations, and Fortune 500 companies. He specializes in privileged access management, designing and architecting secure systems that ensure compliance, streamline automation, and bolster overall security efficiency with a focus on mitigating risk.

2024 CYBERSECURITY DAY SPONSORS

The 17th Annual Cybersecurity Day is proudly sponsored by IUP, PC4A and Millennial Software.



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Controlled by: AFRL/RI
CUI Category: N/A
Distribution/Dissemination Control: Distribution A
POC: B. Wysocki, AFRL

AI – Cyber – Information Warfare Convergence

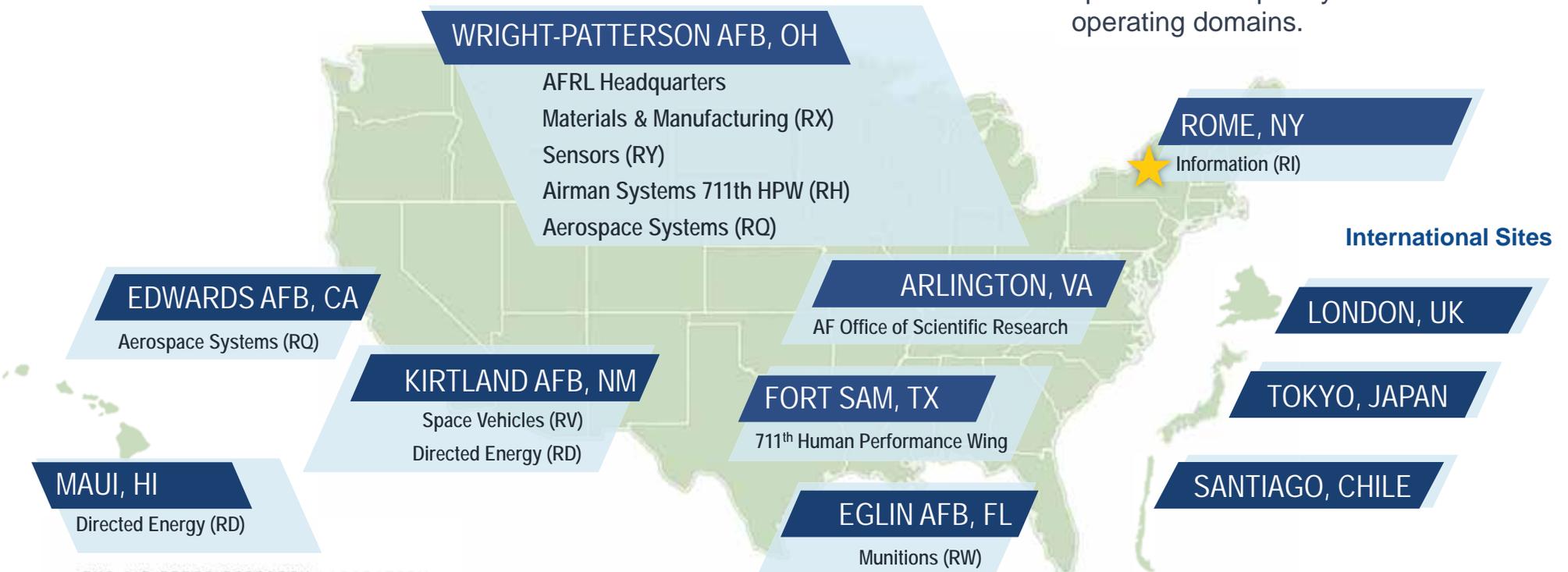
2024 CYBER SECURITY DAY Indiana University of Pennsylvania

Dr. Bryant Wysocki
DAF Technical Advisor
Dr. Sarah Muccio
Deputy DAF Tech Advisor



MISSION: We lead, discover, develop and deliver science, technology and innovation for Warfighters.

VISION: To arm Warfighters that dominate in time, space and complexity across all operating domains.





Information Directorate (RI)

MISSION:

To **EXPLORE, PROTOTYPE**, and **DEMONSTRATE** high-impact, game-changing technologies that enable the Air Force and Nation to maintain its superior technical advantage.



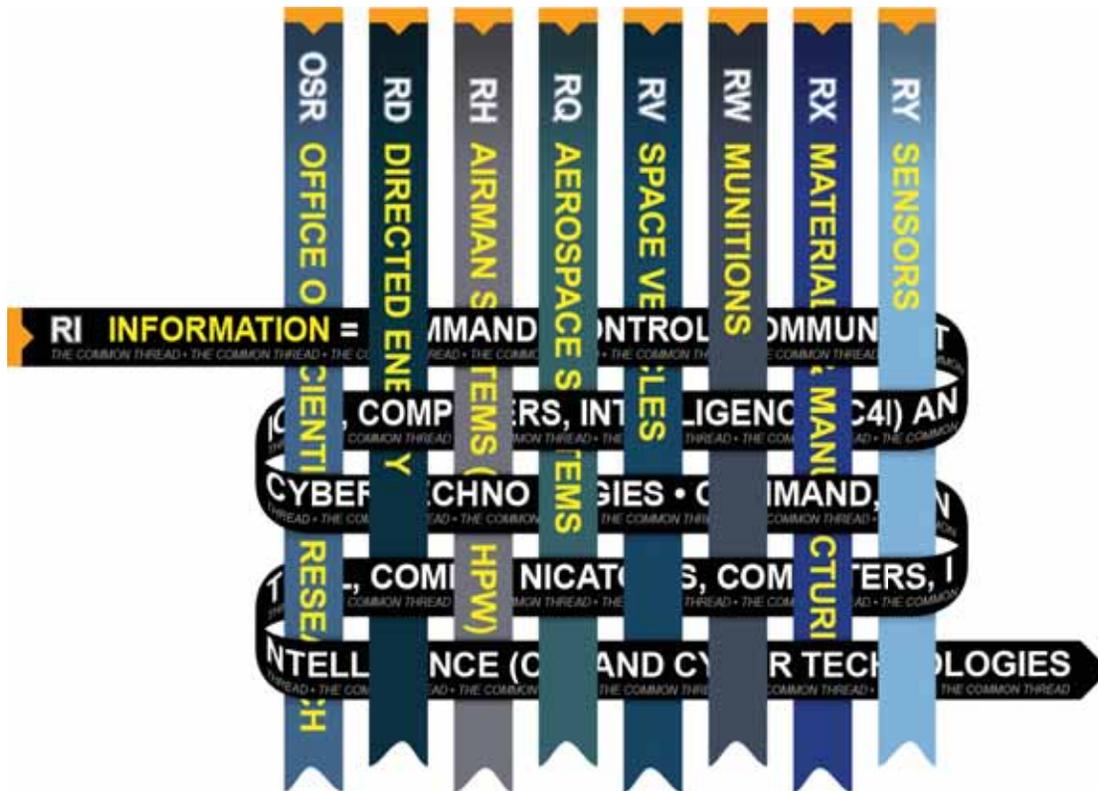
C4I&Cyber

VISION:

To **LEAD** the Air Force and Nation in **COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I) AND CYBER** science, technology, research and development.



Information Technologies Touch Every Core Mission



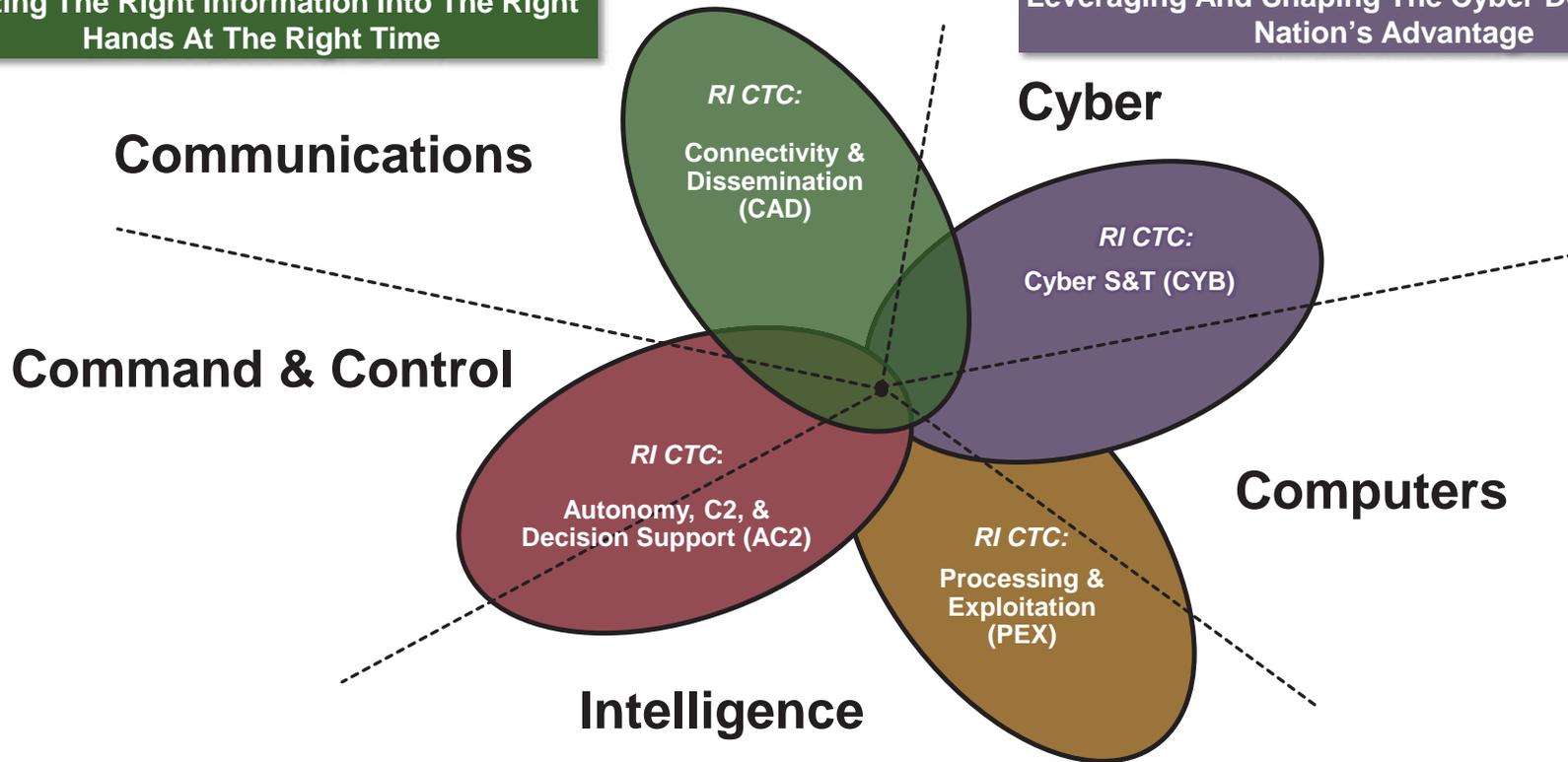
C⁴& Cyber

Command,
Control,
Communications,
Computers,
Intelligence and
Cyber

Information Directorate Core Technical Competencies (CTC)

Putting The Right Information Into The Right Hands At The Right Time

Leveraging And Shaping The Cyber Domain To The Nation's Advantage



Mastering Complexity of Multi-domain Command & Control

Exploiting Computing and Algorithms to Transform Big Data Into Information

AI in Cyber Warfare



AI can enhance the capabilities of both defensive and offensive cyber operations

Predictive Analytics

- Future attacks based on historical data
- Real-time monitoring
- Proactively strengthen defenses

Automated Threat Detection and Response

- Monitor
- Detect
- Respond

Adaptive Cyber Offensives

- Automated vulnerability discovery & exploitation
- Dynamic malware generation
- AI-driven social engineering attacks

AI in Information Warfare



Manipulation of information to influence public perception & decision-making, is increasingly driven by AI

Deep Fakes

AI-generated or Real?

Take a look at this image and share whether you think it is generated by AI or not, and how confident you are in this judgment. You have unlimited time to look at the image.



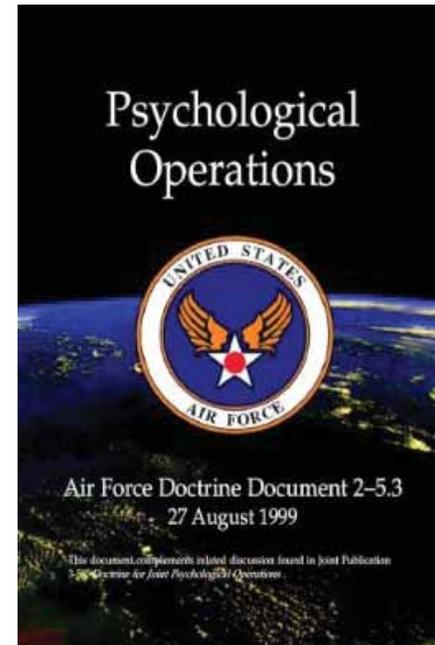
I have seen this before.

Real: This is a real image.

Fake: This is a synthetic image generated by AI.

Northwestern
Kellogg

Targeted Propaganda and PSYOPS



Cyber and Information Warfare Convergence



Bringing technologies to the fight

AI-Augmented



Ethical and Legal Challenges:

- Autonomous decision-making in attack operations
- The spread of deepfakes
- The manipulation of public opinion.



Increased Complexity of Defense:

- defend spectrum of threats, from advanced cyberattacks to information manipulation
- AI-based countermeasures:
 - AI-driven disinformation detection
 - Automated response systems
 - Target space
 - Attack vectors

Escalation of Hybrid Warfare:

- Kinetic, cyber, and information operations are combined into a cohesive strategy
- Blur the lines between conventional and non-conventional warfare



Key Take Away

*Convergence between
AI, cyber, and information warfare
signifies a shift towards more
autonomous, adaptive, and pervasive forms of conflict,
where control over information and digital infrastructure is as
crucial as traditional military dominance.*

INFORMATION DIRECTORATE: C⁴I&Cyber

Global Persistent Awareness

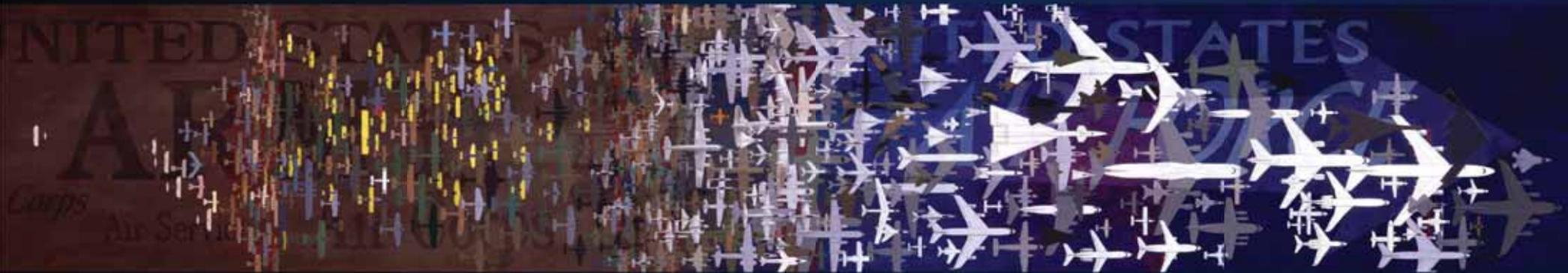
Resilient Information Sharing

Rapid, Effective Decision-Making

Complexity, Unpredictability, and Mass

Speed and Reach of Disruption and Lethality

Questions



LEAD · DISCOVER · DEVELOP · DELIVER

Image Reference slide

- Slide 6 AI in CW

Image of Robot: "AI in cybersecurity" aibusiness.com 8.11.0222

- Slide 8 AI in IW

Image on left Cyber Warrior: "Cyberwarfare and information warfare..." c4ISRnet.com, 4.25.2017

Image on upper right: "Information Warfare – Modern Diplomacy" moderndiplomacy.eu 3.7.2018

Image on lower right: "Information Warfare in 2021 – Are you protected from cyber attacks? – Connected IT Blog - Community.connection.com 19 Feb 2021

- Slide 9 Deep Fakes

Image of Man: "AI generated or Real?" <https://detectfakes.kellogg.northwestern.edu/> 2022 published

- Slide 10 Targeted

Image of robot thinking: <https://www.geeksforgoeks.org/targeted-advertising-using-machine-learning/Slide 2 - IW> 3.1.2023

- Slide 11 CW IW convergence

Image star exploding: Space Telescope Science Institute Office of Public Outreach Credit: NASA, ESA, and J. Kastner (RIT) <https://singularityhub.com/2024/04/16/exploding-stars-are-rare-but-if-one-was-close-enough-it-could-threaten-life-on-earth/> 4.16.2024

- Slide 12 AI-Augmented

Image of man/night sky: "The Age of AI" <https://www.act.nato.int/article/the-convergence-of-emerging-technologies/> 1.31.2024

Growing the Next Generation of Cyber Talent

Matt Isnor

Chief, Workforce Development

**Department of Defense Chief Information Officer
(DoD CIO)**

Oct 2024





The Department of Defense

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The Department of Defense is one of the Nation's largest employers with approximately 3.5 million strong:

- ⚡ 1.3 million active-duty military service members
- ⚡ 750,000 National Guard and Reserve service members
- ⚡ 750,000 civilian personnel
- ⚡ 600,000 contractors





Join Our Mission

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Looking for a **CHALLENGE?**



MORE than just a job?



Have a call to **SERVE?**



The **threat to national security is clear and present**. The United States is looking for capable, energetic individuals interested in serving their country in the federal government!

There are many such Department of Defense opportunities across the digital landscape. The **path you choose** opens unlimited potential for growth opportunities as you safeguard our Nation against current and future threats.

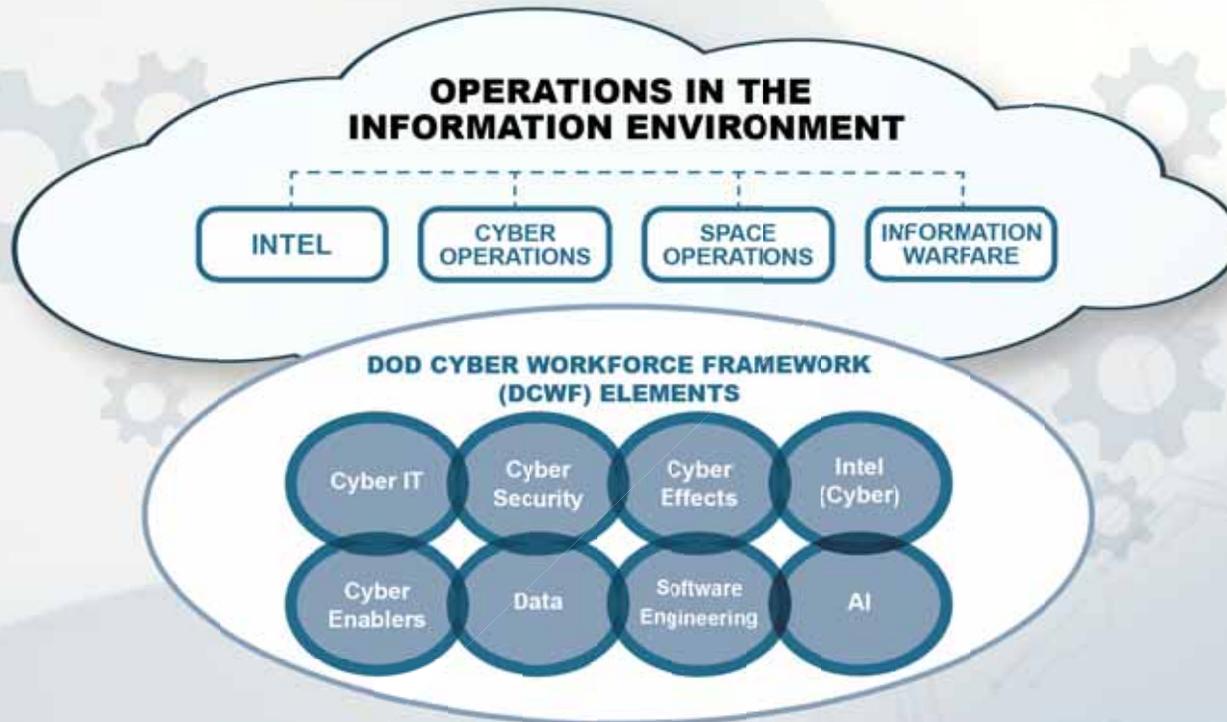
Consider **your next step forward** to a career in the Department...

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DoD Cyber Workforce Overview

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A winning future requires a technology adept and data-literate workforce to achieve a systems over-match

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DoD Cyber Workforce Framework (DCWF)

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- ✓ **72 DoD Cyber Workforce Framework (DCWF) work roles** identified that include core cybersecurity knowledge and skill requirements, supporting homeland defense priorities.
- ✓ **Over 300 DoD 8140 foundational qualification options** available to improve resiliency against cyber attacks and defend critical infrastructure.





DCWF Work Role Alignment to Workforce Elements

Current as of 18 SEP 2024

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CYBER IT

OPR: DoD CIO

- (411) Technical Support Specialist
- (421) Database Administrator
- (431) Knowledge Manager (KM)
- (441) Network Operations (NETOPS) Specialist
- (451) System Administrator (SYSADMIN)
- (632) Systems Developer
- (641) Systems Requirements Planner
- (651) Enterprise Architect (ENTARCH)
- (661) Research and Development (R&D) Specialist
- (671) System Testing and Evaluation (T&E) Specialist

CYBERSECURITY

OPR: DoD CIO

- (212) Cyber Defense Forensics Analyst
- (462) Control Systems Security Specialist
- (511) Cyber Defense Analyst
- (521) Cyber Defense Infrastructure Support Specialist
- (531) Cyber Defense Incident Responder
- (541) Vulnerability Assessment Analyst
- (611) Authorizing Official (AO)/Designated Representative
- (612) Security Control Assessor
- (622) Secure Software Assessor
- (631) Information Systems Security Developer
- (652) Security Architect
- (722) Information Systems Security Manager (ISSM)
- (723) Communications Security (COMSEC) Manager

CYBER EFFECTS

OPR: USD PCA

- (121) Exploitation Analyst
- (122) Digital Network Exploitation Analyst (DNEA)
- (131) Joint Targeting Analyst (JTA)
- (132) Target Digital Network Analyst (TDNA)
- (133) Target Analyst Reporter (TAR)
- (321) Access Network Operator
- (322) Cyberspace Operator
- (332) Cyber Operations Planner
- (442) Network Technician
- (443) Network Analyst
- (463) Host Analyst

INTEL (CYBER)

OPR: USD (I&S)

- (111) All-Source Analyst
- (151) Multi-Disciplined Language Analyst
- (311) All-Source Collection Manager
- (312) All-Source Collection Requirements Manager
- (331) Cyber Intelligence Planner

DATA / AI

OPR: DoD CDAO

- (422) Data Analyst
- (423) Data Scientist
- (424) Data Steward
- (623) Artificial Intelligence / Machine Learning (AI/ML) Specialist
- (624) Data Operations Specialist
- (653) Data Architect
- (672) AI Test & Evaluation Specialist
- (733) AI Risk & Ethics Specialist
- (753) AI Adoption Specialist
- (902) AI Innovation Leader
- (903) Data Officer

SOFTWARE ENG

OPR: USD (R&E)

- (461) Systems Security Analyst
- (621) Software Developer
- (625) Product Designer User Interface (UI)
- (626) Service Designer User Experience (UX)
- (627) Development, Security, Operations (DevSecOps) Specialist
- (628) Software/Cloud Architect
- (673) Software Test & Evaluation Specialist
- (806) Product Manager

CYBER ENABLERS (OPR: DoD CIO)

- Leadership: (732) Privacy Compliance Manager; (751) Cyber Workforce Developer and Manager; (752) Cyber Policy and Strategy Planner; (901) Executive Cyber Leader
- Legal: (211) Forensics Analyst; (221) Cyber Crime Investigator; (731) Cyber Legal Advisor
- Trng & Educ: (711) Cyber Instructional Curriculum Developer; (712) Cyber Instructor
- Acquisition: (801) Program Manager; (802) IT Project Manager; (803) Product Support Manager; (804) IT Investment/Portfolio Manager; (805) IT Program Auditor



Cyber Excepted Service

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The Secretary of Defense authorized the Cyber Excepted Service (CES) Personnel System to provide you a more streamlined process with flexibility to:



SKIP THE LINE: USAJobs hiring process not required. Go direct through your Agency.



“ON THE SPOT” HIRING: Fast-track past lengthy Federal approval process.



MERIT-BASED PROMOTION: Advance as you skill up; time requirements waived.



INCREASED PAY POTENTIAL: Job Offers up to step 12 (Standard Federal limit: Step 10).



ENHANCED PAY FOR CRITICAL WORK ROLES: Targeted supplemental pay for the most in-demand jobs.

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Fast Track to a CES Position – Direct Application



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YOUR FAST PASS TO SUCCESS

Skip the line and apply directly to
a CES organization

U.S. Cyber Command:

<https://www.cybercom.mil/Employment-Opportunities/>

U.S. Army Cyber Command:

<https://www.arcyber.army.mil/Careers/>

US Navy:

<https://www.fcc.navy.mil/CAREERS/CIVILIAN-JOB OPPORTUNITIES/>

US Air Force:

<https://afciviliancareers.com/find-a-job/>

Chief Digital and Artificial Intelligence Office:

<https://www.ai.mil/careers.html>

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CES Compensation Basic Principles

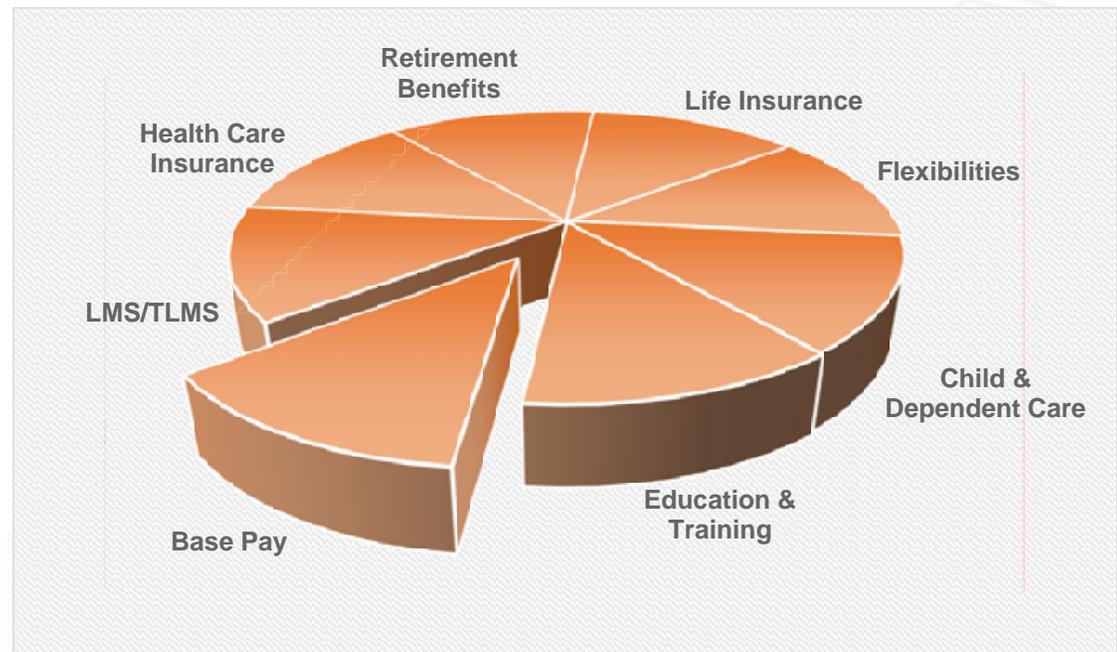
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CES Compensation Architecture

Provides pay opportunities that enable flexible and effective recruitment, development, and retention of a high-quality workforce

PAY RANGES:

- **Grade 5** \$45,146 - \$58,686 to **Grade 15** \$163,964- \$191,900
(Greater Washington, DC and Baltimore area)
- *This includes a total compensation package excluding your basic salary equal up to \$40,000.*





DoD Cyber Service Academy

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The DoD Cyber Service Academy (DoD CSA)

(Formerly the Cyber Scholarship Program) is designed to encourage the recruitment of the nation's top cyber talent and the retention of DoD personnel who have skills necessary to meet DoD's cyber requirements and help secure our nation against the threats of information systems and networks.

Grants awarded for scholarships and capacity building to NCAE-Cs:

SCHOLARSHIPS:

- **Recruitment:** Targets students who are not current DoD or Federal employees and who are enrolled at designated NCAEs; may be undergraduate or graduate students
- **Retention:** Targets Military and Civilian DoD personnel for Associates or Graduate (Certificates, Masters, and PhD programs)

CAPACITY BUILDING:

- Enhances/expands cyber education programs & curricula to support the cyber talent pipeline

Job Opportunities



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DoD *continuously* seeks talent at varying levels. Talent opportunities are available if you are currently:

- *An Undergraduate Student*
- *A Graduate Student*
- *A Recent Graduate*
- *Non-Student – Seeking Federal Employment*

FIND YOUR FIT!

Students and Recent Grads

- <https://help.usajobs.gov/working-in-government/unique-hiring-paths/students>
- <https://www.dodciviliancareers.com/civiliancareers/studentsrecentgrads>
- <https://www.dodciviliancareers.com/civiliancareers/internships>

DoD and OPM Cyber Careers

- <https://www.dodciviliancareers.com/>
- <https://www.opm.gov/cyber-careers/cyber-careers-job-seekers/>

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DoD CIO Workforce Innovation Directorate DoD (DISA) Cyber Exchange References & Resources



Browser address bar: https://cyber.mil



The authoritative source for DCWF/DoD 8140 resources is the DoD (DISA) Cyber Exchange (Public/NIPR).

Navigation menu: Topics, Training, WID, PKI/PKE, SRGs/STIGs, Resources, Help



❖ DoD 8140 Landing Page, Documents Library & Qualification Matrices

- **Landing Page:** <https://cyber.mil/wid/dod8140/>
- **Documents Library/Qualification Matrices:** <https://cyber.mil/wid/dod8140/documents-library>

DOD WORKFORCE INNOVATION DIRECTORATE

DoD Workforce Innovation Directorate (WID) Home	Cyber Information Technology Exchange Program (CITEP)
DoD 8140	DoD Cyber Service Academy (DoD CSA)
DoD Cyber Workforce Framework (DCWF)	Cyber Workforce Rotational Program (CWRP)
DoD Cyber Excepted Service (CES)	Federal Cyber Career Pathways

DoD 8140 Supplemental Resources Coming Soon

- DoD 8140 Foundational Qualification Matrix Refresh Schedule: *DCWF CS, IT, Cyber Enabler Elements Spring 2025*
- DoD 8140 Module 4: *Cyber Position Identification*
- DoD 8140 Module 5: *Civilian Cyber Positions*
- DoD 8140 Module 6: *Cyber Workforce Development & Qualification*
- DoD 8140 Module 7: *Cyber Analytics & Reporting*

❖ DCWF Landing Page & Work Role Tool

- **Landing Page:** <https://cyber.mil/wid/dod-cyber-workforce-framework/>
- **Work Role Tool:** <https://cyber.mil/wid/dcwf/>

❖ Cyber Excepted Service (CES) Landing Page, Operational eGuide & Compensation Calculator

- **Landing Page:** <https://cyber.mil/wid/dod-cyber-excepted-service-ces/>
- **Operational eGuide:** <https://dl.cyber.mil/trn/online/ces-hr-reference-guide/index.html#/>
- **Compensation Calculator:** <https://dl.dod.cyber.mil/wp-content/uploads/dces/CES-Incentives/story.html>

UNCLASSIFIED

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We Want Top Cyber Talent



01100011 01111001 01100010 01100101 01110010 00100000 01110111 01101111 01110010 01101011 01100110 01101111 01110010 01100011 01100101 00001010



"To recruit and retain the most talented workforce, we must advance our institutional culture and reform the way we do business. The Department must attract, train and promote a workforce with the skills and abilities to tackle national security challenges, creatively and capably, in a complex global environment."

— Secretary Austin,
Secretary of Defense

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Back-Up Slides



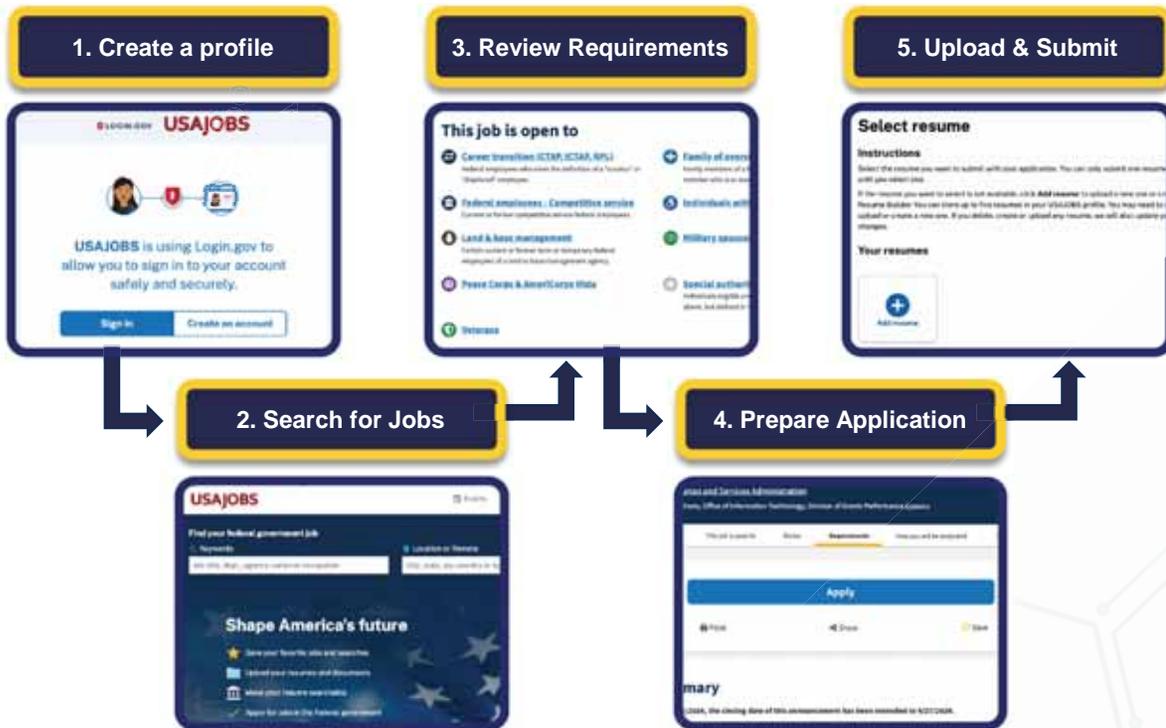
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Apply to a Federal/DoD Job

01100011 01111001 01100010 01100101 01110010 00100000 01110111 01101111 01110010 01101011 01100110 01101111 01110010 01100011 01100101 00001010

USAJobs hiring process: <https://www.usajobs.gov/>



Transition to the Department

1. *Reviews Applications Received*
2. *Interviews Qualified Applicants*
3. *Selects Candidate(s) and Makes Job Offer*

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Cyber Academic Engagement Office



01100011 01111001 01100010 01100101 01110010 00100000 01110111 01101111 01110010 01101011 01100110 01101111 01110010 01100011 01100101 00001010



In accordance with the National Defense Authorization Act (NDAA) Section 1531, the Department of Defense (DoD), Office of the Chief Information Officer has established the CAEO to serve as the consolidated focal point for cyber-related activities carried out between the DoD and academia stakeholders.



UNCLASSIFIED



Navy Cyber Science & Technology

Indiana University of Pennsylvania
2024 Cyber Security Day

Mr. Joey Mathews

Superintendent, Information Technology Division
US Naval Research Laboratory, Washington DC

29 Oct 2024



NSA Information Assurance Scholar

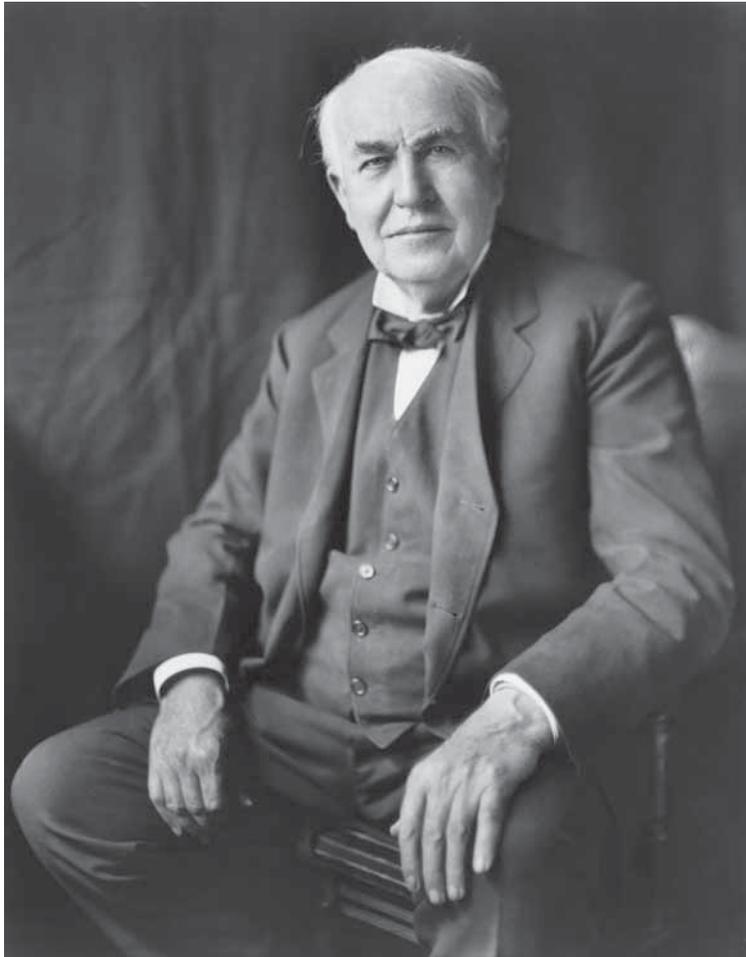


- B.S., M.S., Computer Engineering
- Computer Architecture & Networks
 - Computer Security & Info Assurance



- Student Trainee
- Computer Engineer
- Section Head, Network Security
- Director, Center for High Assurance Computer Systems
- Superintendent, Information Technology Division





“The Government should maintain a **great research laboratory** to develop guns, new explosives, and all the technique of military and naval progression without any vast expense.”
 – Thomas Edison, 1915



100 years later, NRL has tilted the world's balance of power on at least three occasions with the **first U.S. radar**, the world's **first intelligence satellite**, and the **first operational satellite of the Global Positioning System**.

A close-up of a metallic, humanoid robot head with a white faceplate and dark eyes, set against a dark background with faint blue and purple lighting.

**Artificial
Intelligence**

A person in a dark environment, possibly a control room, looking at a screen. The scene is dimly lit with blue and purple tones.

**Communications
& Networks**

Two people in a control room looking at multiple computer monitors displaying various data and maps.

**Information
Operations**

A close-up of a complex network switch or server rack with many ports and cables, illuminated with blue light.

**High Assurance
Systems**

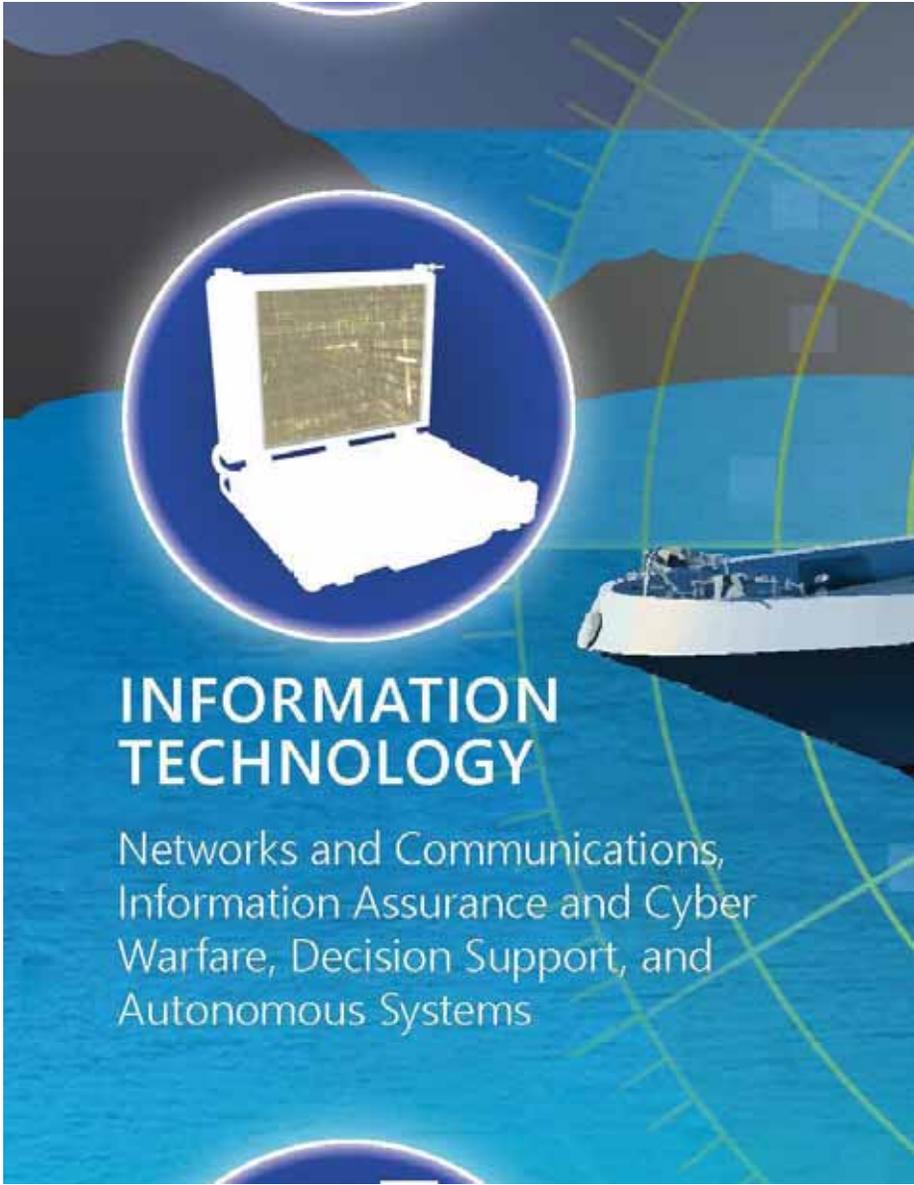
A person's face is overlaid with a green, glowing digital grid pattern, suggesting data analysis or decision-making.

**Information &
Decision Sciences**

A server room with rows of server racks and cooling units, lit with blue light.

**Computational
Science**

NRL's Information Technology Division (ITD) carries out research and development in the collection, transmission, assurance, and processing of information to provide Naval and joint warfighting forces with the means to achieve and maintain information dominance in the battlespace.

A large graphic with a blue background featuring a glowing globe, a laptop computer, and a ship's hull. The text 'INFORMATION TECHNOLOGY' is prominently displayed in white.

INFORMATION TECHNOLOGY

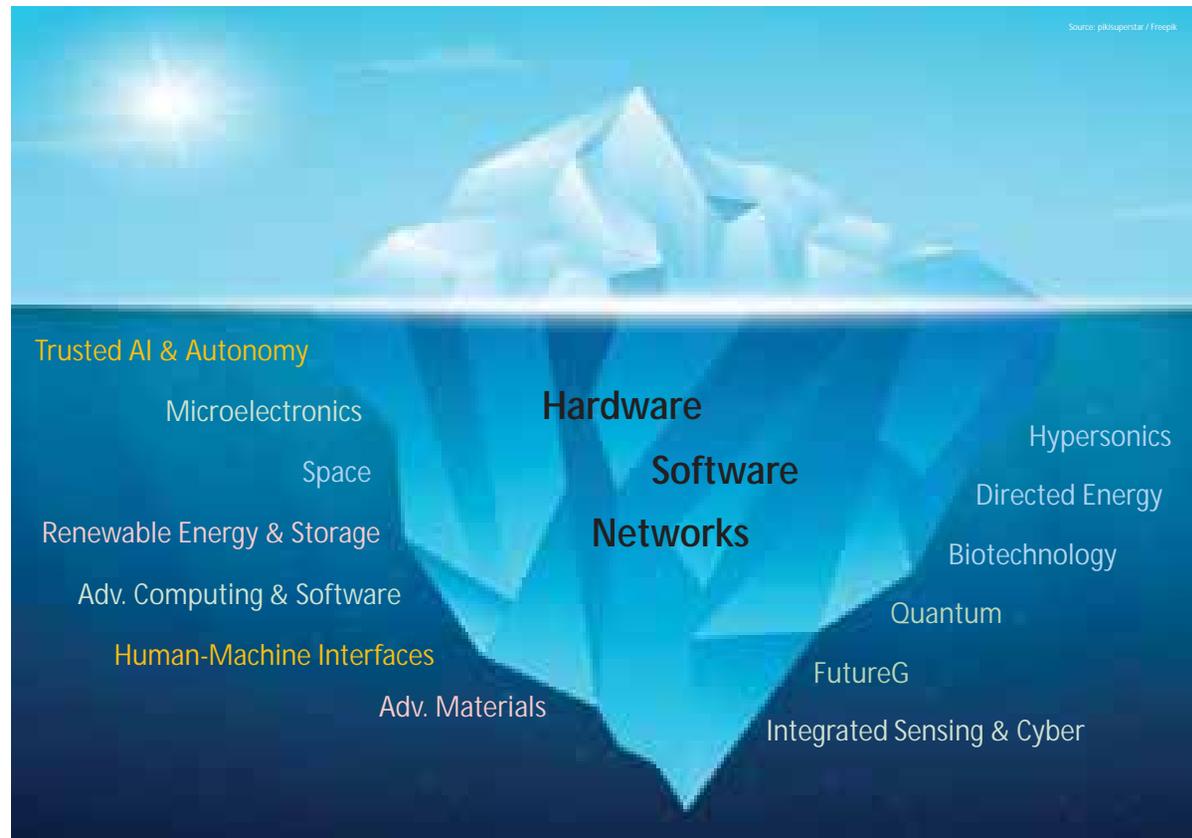
Networks and Communications,
Information Assurance and Cyber
Warfare, Decision Support, and
Autonomous Systems

Technologies that reduce time, cost, and cognitive load of missions; Also a new source of cyber vulnerabilities.

Technologies that create new cyberspace and underpin most warfighting missions.

Technologies that rely on cyberspace for breakthroughs from modeling & simulation.

Technologies that drive new cyber-physical platforms and infrastructure; Also a new source of cyber vulnerabilities.



<https://www.cto.mil/usdre-strat-vision-critical-tech-areas/>











THE WORLD HAS CHANGED

Threats and tech

- The PRC challenge goes well beyond just the size of the PLAN fleet
- A wounded Russia is dangerous, and increasingly linked to PRC
- Peace is brittle, the Navy provides options
- We have seen a breakthrough in battlefield innovation in the Black Sea and Red Sea



Ukraine drone operator. Image credit: NY Times

The PRC Chairman told his forces to be ready for war by 2027; We will be ready too



10/6/2024 3

<https://www.navy.mil/Leadership/Chief-of-Naval-Operations/CNO-NAVPLAN-2024/>



China Is 'Working Furiously' to Grow Its Fleet Ahead of a 2027 War—And That's a Clear Threat to America

Popular Mechanics · 1d

<https://www.popularmechanics.com/military/navy-ships/a62512551/is-the-us-navy-ready-for-war-with-china/>

The Challenge

- We have the most powerful military in history, but our strength doesn't stop cyber-attacks.
- Traditional military power is ineffective in cyberspace, where enemies can find weakness.
- The Navy faces growing threats from cyber adversaries and emerging AI-related risks.

Why it Matters

- Navy operates many long-lived platforms under disadvantaged conditions, complicating security.
- Global supply chains create implicit trust, leading to vulnerabilities in software-defined capabilities.
- Enemies exploit a wide range of attack methods, taking advantage of anonymity afforded by cyberspace.

How We Tackle the Problem

Develop scientific foundations for how the Navy will operate and defend its cyberspace

- **Software Debloating:** Remove unused code to shrink the cyber-attack surface.
- **Binary Diversification:** Reshape software to force adversaries to target multiple variants.
- **Cyber-Separability:** Design failover systems with different vulnerabilities than the primary system.
- **Vulnerability Discovery:** Use static, dynamic methods, and exploitability tools to find issues early.
- **Formal Methods:** Reduce bugs by generating code from mathematically verified specifications.



<https://www.wsj.com/articles/navy-industry-partners-are-under-cyber-siege-review-asserts-11552415553>



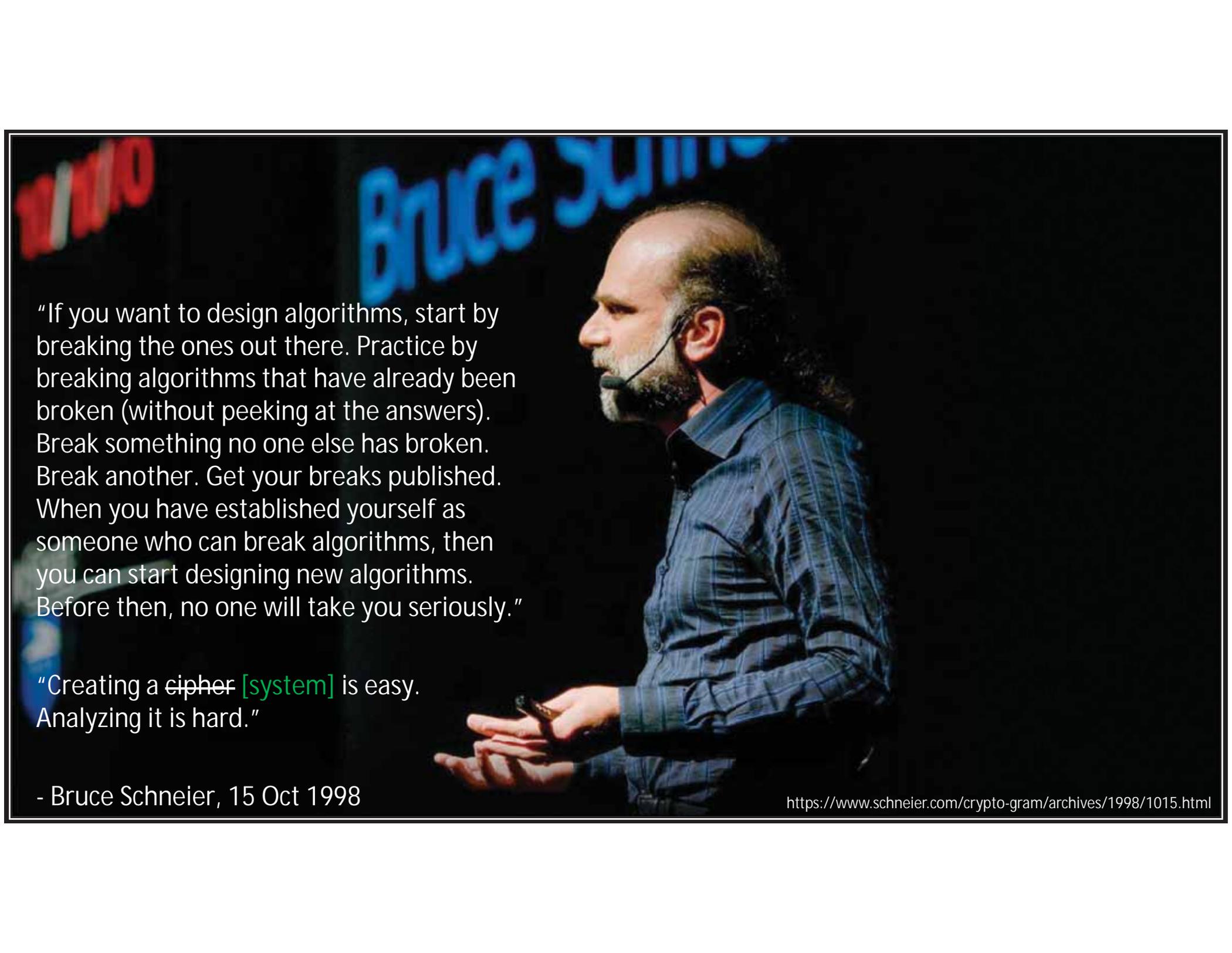
[2022] “The role of the cloud in mitigating these types of attacks also cannot be understated.” - Microsoft President Brad Smith, on the **Solarwinds** attack.

<https://www.intelligence.senate.gov/sites/default/files/documents/os-bsmith-022321.pdf>



[2024] “The fallout, which was immediate and inescapable, highlighted the brittleness of global technology infrastructure.” -The New York Times, on the **Crowdstrike** outage.

<https://www.nytimes.com/2024/07/19/business/microsoft-outage-cause-azure-crowdstrike.html>

A photograph of Bruce Schneier speaking at a conference. He is wearing a blue button-down shirt and a headset microphone. The background is dark with blue and red text. The name "Bruce Schneier" is visible in large blue letters. To the left, there is some red text that is partially obscured.

"If you want to design algorithms, start by breaking the ones out there. Practice by breaking algorithms that have already been broken (without peeking at the answers). Break something no one else has broken. Break another. Get your breaks published. When you have established yourself as someone who can break algorithms, then you can start designing new algorithms. Before then, no one will take you seriously."

"Creating a cipher [system] is easy. Analyzing it is hard."

- Bruce Schneier, 15 Oct 1998

<https://www.schneier.com/crypto-gram/archives/1998/1015.html>



Naval Air Warfare Center Weapons Division (NAWC WD)

- Point Mugu and China Lake, CA
- Research and Development
 - Missiles and Freefall Weapons
 - Weapon System Integration
 - Land/Sea Range
 - Non-Lethal Weapons

Naval Facilities Engineering Command (NAVFAC) Engineering & Expeditionary Warfare Center (EXWC)

- Port Hueneme, CA
- Expeditionary Equipment Life-Cycle Management
 - Energy Technology Solutions
 - Environmental Security
 - Facilities Engineering

Naval Information Warfare Center Pacific (NIWC PAC)

- San Diego, CA
- Research and Development
 - Engineering, Test and Evaluation
 - Installation and In-Service Engineering Support
 - Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)
 - Cyber
 - Space

Naval Undersea Warfare Centers (NUWC)

- Keyport (Keyport, WA) and Newport (Newport, RI)
- Submarine Systems and Torpedoes
 - Undersea Warfare Systems
 - Autonomous Undersea Vehicles

Naval Research Laboratory (NRL)

- Washington, DC; Monterey, CA; and Stennis, MS:
- Radar
 - Information Technology
 - Optical Sciences
 - Tactical Electronic Warfare
 - Chemistry
 - Material Sciences & Technology
 - Plasma Physics
 - Electronics Science & Technology
 - Biomolecular Science
 - Acoustics
 - Remote Sensing
 - Marine Geosciences
 - Marine Meteorology
 - Space Science
 - Space Systems Development
 - Spacecraft Engineering

Naval Air Warfare Center Aircraft Division (NAWC AD)

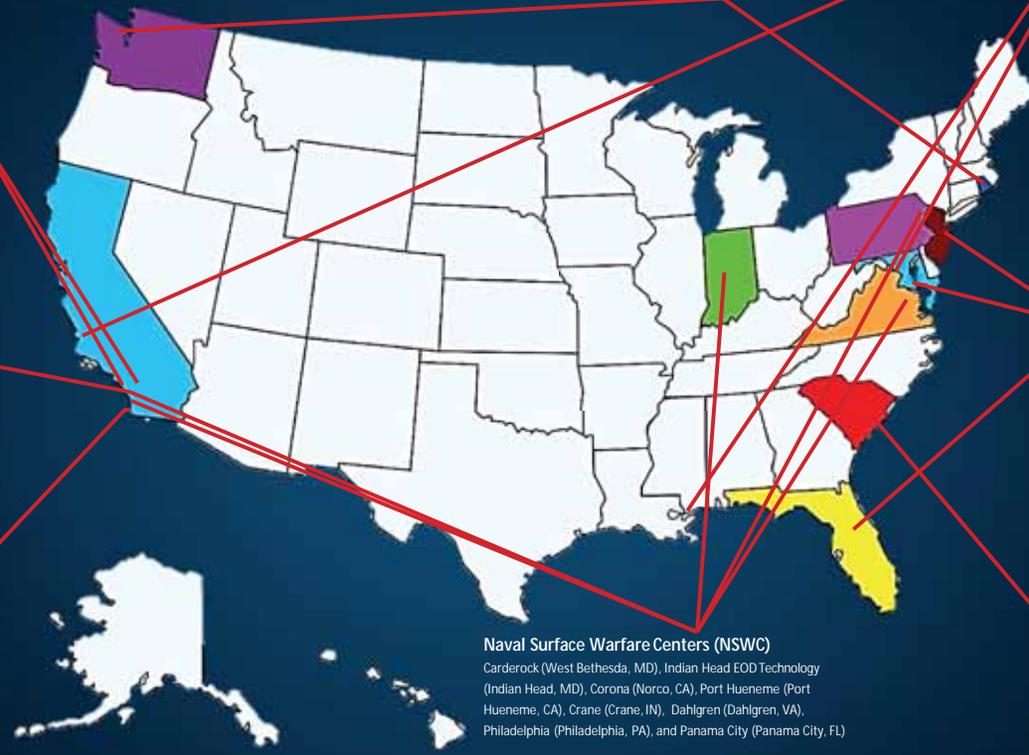
- Patuxent River, MD; Lakehurst, NJ; and Orlando, FL
- Research and Development
 - Aircraft Modeling, Simulation, and Analysis
 - Airborne Surveillance Systems
 - Air Anti-Submarine Warfare Systems and Sensors
 - Aircraft Electronic Warfare

Naval Information Warfare Center Atlantic (NIWC LANT)

- Charleston, SC
- Intel Collection/Processing
 - Communications
 - Info Management
 - Business Information

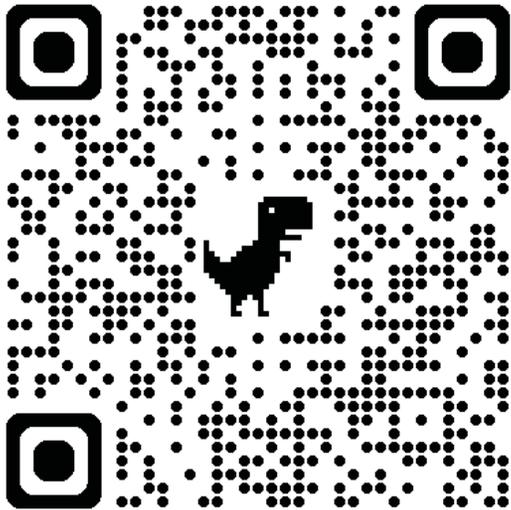
Naval Surface Warfare Centers (NSWC)

- Carderock (West Bethesda, MD), Indian Head EOD Technology (Indian Head, MD), Corona (Norco, CA), Port Hueneme (Port Hueneme, CA), Crane (Crane, IN), Dahlgren (Dahlgren, VA), Philadelphia (Philadelphia, PA), and Panama City (Panama City, FL)
- Ships and Ship Systems
 - Warfare Systems Readiness and Assessment
 - Sensors
 - Electronics and Electronic Warfare Systems
 - Surface Ship and Expeditionary Warfare Systems
 - Surface Warfare Logistics and Maintenance
 - Energetics
 - Explosive Ordnance Disposal
 - Mines and Mine Countermeasures
 - Diving Systems





<https://navalstem.us/>



Be self-aware and adaptable: Know your strengths, weaknesses, and interests. Stay humble, seek mentors, and always be ready to learn.

Communicate and collaborate effectively: Listen first, speak clearly and with enthusiasm, measure your outcomes, and uplift your team by sharing credit.

Start now: Remember, the average age of NASA engineers who put humans on the Moon was just 28. Young minds can lead major achievements.





NR LABS
CYBER. IT'S IN OUR DNA

IUP Cyber Security
Conference



Agenda



- Introduction
- Our Experience
- Resume
- Interviews
- Negations
- Mistakes (mainly Logan's)

Introduction



- Who are we?
- What do we do?
- What is this talk even about?



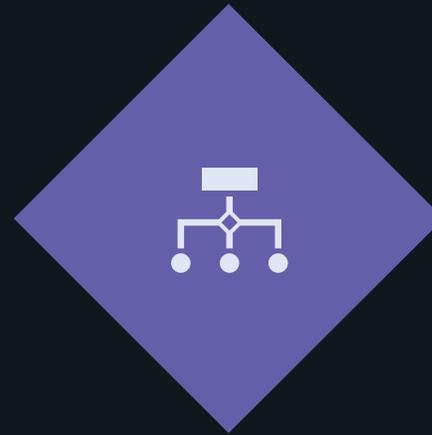
An expert is someone who knows more and more about less and less until finally he knows everything about nothing. – Nicholas Butler

What's not being said



Reality

- It's hard
- You'll need experience
- Expectations



LinkedIn World

- Everything is Celebrated
- Everything is Perfect
- Every Company Cares



Sebastián Ramírez @tiangolo

I saw a job post the other day. 📌

It required 4+ years of experience in FastAPI. 🧑‍💻

I couldn't apply as I only have 1.5+ years of experience since I created that thing. 😅

Maybe it's time to re-evaluate that "years of experience skill level". 🌱

7:40 AM - Jul 11, 2020 - Twitter Web App

341 Retweets and comments · 1.1K Likes

7 years ago was 2009. So yes, I have this.
*Creator of NodeJS

Actual Recruiter @actualrecruiter
7-10 years experience nodeJS

the internets isaacs @isaacs

I guess it wasn't until the summer that I started messing around with node, so a few months shy. But still :)

RETWEETS 2 · LIKES 11

10:30 AM - 10 May 2016

I Am Developer @iamdeveloper

> we're looking for a junior developer with the experience of a senior developer for the salary of an intern

9:40 PM · Oct 18, 2017

6,773 Retweets · 14,422 Likes

Found a job opening that requires 8+ years of Swift experience.

Swift is a programming language that came out 3 years ago.

8/18/17, 2:05 PM

26.4K Retweets · 67K Likes

Common Resume Mistakes

Typo's

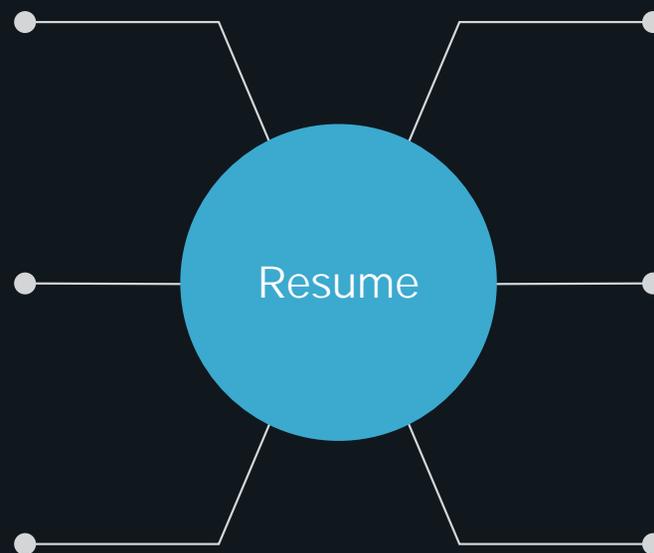
Cing bad SpeLleng an
grammur is coomun

Lack of Clarity

I was there sometimes
and maybe worked
somewhere, but I again
work for here too

Bloat

Certifications & Awards can be
good ...but



Lying

Please stop!

Lack of Experience

It's okay, we know!

Contact Information

Stop providing your gamer tags
and discord links

Show pride in your work!



I worked on an SSH project to ensure we had successful connections



I designed and deployed a robust SSH proxy infrastructure aimed at securing remote access to sensitive systems. The objective was to establish a single entry point for SSH connections, allowing for strict control, auditing, and monitoring of privileged access.

MICHAEL J. MARTONE

Objective Ideal position would be businessman, with \$18,000 to \$22,000 salary with benefits and the following additional compensation: office, receptionist, stocks and bonds, commemorative coins.

Experience **1996-present:** Business Incorporated, *Cleveland*
Vice President of Impressive Business Dealings
• Outsourcing and inbuying
• Overseeing important industry
• Burning the midnight oil

1992-1995: The Newspaper, *Cleveland*
Reporter
• Wrote lots of articles
• Took excellent photographs
• Won Puletsur Prize and donated it to charity

Additional Experience General life experience, fiber optics, PowerPoint, acting Commissioner of fantasy football league.

Education Yale
Harvard
Oxford
DeVry
Hold degrees in Business Running and Profit Making

Interests Work, putting in overtime, not drinking, smoking, or doing anything else that would increase the company's health-care costs. I do like reading business magazines and upselling.

REFERENCES UNAVAILABLE
BECAUSE THEY WERE ALL BURNED UP IN A FIRE

fax to Kinkos • e-mail lovestowork@hotmail.com
32145 Main Street • Cleveland, OH 44444 • Phone (216) 555-8764

I HAVE
A
BACHELOR'S
DEGREE
GIVE
JOB.

OBJECTIVE

To claw my way to the top using any means necessary...but then be a fair and just ruler and bring your company to new heights, or whatever

PERSONAL ATTRIBUTES

Cat-like reflexes - now you see me, meow you don't
Possible ESP
Knows when to hold, knows when to fold
Emits pleasant aroma(s)
Horse-like laugh (optional)
Extremely proficient in MarioKart for Super Nintendo
Not bad at "sexy" dancing
29 years old but have the facial hair of a 13 yr old
Can eat a LOT at one sitting. Oh, also I can moonwalk quite well!

EXPERIENCE

I am quite experienced with the McDonald's Menu
One time I rode a horse but it bucked me off. I was injured and ended up gaining like 30lbs but then I shed that weight like snakeskin, very fast metabolism

- Im good with ppl
- I wear your clothes
- Im a model so I can sell the clothes

Skills

- Good at organizing
- Good sense of humor
- Good with people
- Good with infants and children

Hobbies

- Hunting
- Laser tag
- Animal training
- Eyebrow tweezing
- Tattoo assistant
- I donated my hair to charity

Volunteer experience

- Wrapping gifts at the hospital
- Wrapping gifts at centerpoint mall
- Wrapping presents at the bay
- Touring children around the school and gave them snacks like coke and cookies

I hope you think I could work at this job. I think I would do well because im a good

Interviews

Read the Room

Try to gauge what's relevant



Appropriate Conversations

Try to keep the conversation clean

Control what you can

Do your research in advance, clarify any concerns or complications, and communicate clearly



It's ok to be nervous

Interviews can be nervous, especially if it's something you really want

Ask Questions!
One of the simplest things you can do is ask any question



Don't Lie!
Just another reminder!

Wheeling and Dealing

-  Balancing Act
-  Be Open to Conversation
-  Overall Value
-  Know your Audience
-  It's Optional

My Mistakes



What went wrong



Interviews:
I didn't prepare



Resumes:
Over Complicated



Time Management:
Didn't exist



Learning:
Adapt & can-do mentality

Improving

- Practice makes perfect
- Catered my resume
- Adopted a calendar
- Adjusted my viewpoint



In Conclusion

“Don’t go around saying the world owes you a living. The world owes you nothing. It was here first.” —*Mark Twain*

- Honesty
- Express Interest
- Clarity
- Preparation
- Be human



Jon David
jon.david@nrlabs.com
[Jon's LinkedIn](#)



Logan Zelle
Logan.Zelle@nrlabs.com
[Logan's LinkedIn](#)

From Campus to Career: Making Moves, Not Mistakes