NMT University Profile

- Founded in 1889
- Undiluted hard-core STEM school
- ~2000 students
- Rock bottom F&A
- Hispanic and tribal populations
- We’re #18! (highest % go on for PhD of any public uni)
NMT CSE Department Profile

► CS at NMT Founded in 1966
  ▪ Our BS program (1967) is probably older than yours
► 2nd largest department at NMT…but still tiny
► Focus: Rigor in Theory and Practice
► CS is about scale and complexity
► Students run our department’s network and compute infrastructure! (Kwisatz Haderach)
► College Factual 2020: NMT CS is #10 in US for best value, #3 in SW for grad pay
CS Programs and Accreditation

- B.S. in Computer Science
- Extremely popular
- Accelerated 5 year BS+MS
- MS in Computer Science
- Ph.D. in Computer Science
- ~6 research faculty
- ~3 instructors
- ~250 undergrads
- ~45 grad students
- ~42/year degrees awarded

- BS in Computer Science is accredited by ABET
- NSA/DHS Center of Academic Excellence in Cyber defense research (CAE-R)
- State of New Mexico designated Cybersecurity Education Center and Cybersecurity Center of Excellence
Department Research

- Data management, data science, and data analytics
- **Machine learning and soft computing**
- Management, analysis, economics, technology
- **Security, cybersecurity, usable security, information privacy, smart power grid security**
- Smart wireless sensor networks
- Software engineering and programming languages
- Theory
- Visualization and virtual environments
Norfolk State University
Computer Science Department

Presentation for CRA Conference at Snowbird

Felicia Doswell, Ph.D.
Interim Chair, Computer Science Department
July 19, 2022
NORFOLK STATE UNIVERSITY

• Four-year, public, urban, co-educational comprehensive university offering programs at the undergraduate and graduate levels.
• Founded September 18, 1935
• Over 5,000 students with close to 87% attending full time.
• Accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, masters, and doctorate degrees.
• Located in the Hampton Roads region of Virginia near downtown Norfolk and within driving distance of the resort city of Virginia Beach.
• Norfolk is home to the world’s largest naval base and the North American Headquarters for NATO (North Atlantic Treaty Organization).
• Several Fortune 500 corporations, two federal research laboratories and other military installations are also in the Hampton Roads area.
COMPUTER SCIENCE AT NSU

Formed in 1990 and designed to provide students with fundamental training in the theoretical and practical aspects of computer science.

Offers an ABET accredited general computer science degree and tracks in Computer Science, Cybersecurity, Computer Engineering, and Software Engineering.

The CS department has 15 full-time faculty members, 14 hold doctorate degrees (5 full, 5 Associate, 3 Assistant Professor, 2 instructors) and 5 Adjunct faculty.

Center of Academic Excellence in Information Assurance Education (CAE-IAE)

Faculty participate in research in cybersecurity, artificial intelligence, internet of things, machine learning, data science, high performance computing, computer science education, game design and simulation, quantum computing
CS ACADEMIC PROGRAMS

Undergraduate

• BS in Computer Science (BS.CSC)
• BS in Computer Science, DNIMAS (BS.CSC.DNIMAS)
• BS in Computer Science Cybersecurity Track (BS.CSC.CYB)
• BS in Computer Science – Cybersecurity DNIMAS (BS.CSC.CYBD.DNIMAS)
• BS in Computer Science – Computer Engineering Track (BS.CSC.CET)
• BS in Computer Science – Computer Engr. DNIMAS (BS.CSC.CET.DNIMAS)
• BS in Computer Science – Software Engineering Track (BS.CSC.SET)
• BS in Information Technology (BS.ITE)

Graduate Programs

• MS in Computer Science (MS.CSC)
• MS in Computer Science (MS.CSC.Online)
• MS in Cybersecurity (MS.CYB)
RESEARCH INTERESTS

Cybersecurity
Artificial Intelligence (AI)
Internet of Things
Cloud Computing
Data Science
Computing to address Health Disparities
User Experience and Interface Design
Computer Science Education
### RECENT COLLABORATIONS AND FUNDING SOURCES

<table>
<thead>
<tr>
<th>Collaboration / Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI-CYS: Collaborative NSF MSI Grant Artificial Intelligence and Cybersecurity</td>
</tr>
<tr>
<td>Apple Inc. &amp; Tennessee State University Equipment Grant, HBCU-C2 Coding and Creativity Center Initiative;</td>
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<tr>
<td>State Council for Higher Education in Virginia (SCHEV), Norfolk State University Tech Talent Investment Program (TTIP) Award</td>
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<tr>
<td>Coastal Virginia Commonwealth Cyber Initiative (CoVA CCI) – Development of Cloud Infrastructure</td>
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<tr>
<td>Virtual Environment for Offshore WindFarms / Department of Homeland Security, Oak Ridge Institute for Science &amp; Education</td>
</tr>
<tr>
<td>NSU Quantum Computing Curriculum, Faculty, Workforce, and Research Proposal Development Project / IBM-HBCU Quantum Center</td>
</tr>
<tr>
<td>Norfolk State University Gencyber Professional Development for High School Teachers Award</td>
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</table>
EXTERNAL COLLABORATIONS

Elizabeth City State University
Hampton University
Jackson State University
Lemoyne-Owens College
Mississippi Valley University
North Carolina A&T University
Old Dominion University
Purdue University
Tennessee State University
Virginia Tech
Apple
Google
Microsoft
Various Government Agencies
NSF
DOD
CS-RELATED CENTERS

• CYBERSECURITY COE
  • Virginia Modeling, Analysis and Simulation Center (VMASC) - Old Dominion University (ODU) to establish and operate a Center of Excellence in Cyber Security (COE-CS) with an emphasis in Cyber Modeling, Simulation, Analysis, and Experimentation (CMSA&E)

• IA-REDI
  • Information Assurance Research and Education Development Institute (IA-REDI) provides opportunities for students to learn about the theory and practice of Information Assurance and Cybersecurity.
Kaushik Roy, PhD
Professor and Interim Chair
Department of Computer Science
Director, Center for Cyber Defense
Director, Cyber Defense and AI Lab

HAROLD L. MARTIN SR. ENGINEERING
RESEARCH & INNOVATION COMPLEX

CYBER DEFENSE AND AI LAB
North Carolina Agricultural and Technical State University

- NCAT is the largest HBCU and is a leader in science, technology, mathematics, and engineering education.

- NCAT is one of North Carolina’s top research campuses and offers 42 Master’s and Doctoral degree programs, 58 undergraduate degree programs, and 9 post-baccalaureate and post-master’s programs.

- Our research portfolio includes 44 patents, 27 patents pending, and 16 patents licensed for commercial activity.

- We have received more than $97 million in contracts and grants in the 2021-2022 academic year.

- NCAT recently added several new Centers of Excellences (Cybersecurity, Advanced Manufacturing, and Entrepreneurship and Innovation).

- Enrollment: 13,322 (Fall 2021)-Graduate: 1700, Undergraduate: 11,600
COLLEGE OF ENGINEERING

• The College of Engineering at North Carolina A&T State University cultivates leaders who excel at academics, innovation, and research.

• One of the top producers of African American graduates in engineering in the United States.

• 10 ABET-Accredited Undergraduate Programs, 8 M.S. Programs, 5 Ph.D. Programs

• Research Thrusts (Autonomous Systems, Cybersecurity and Resilience, Energy and Sustainability and Healthcare Applications, and Complex Systems and Networks)

• Research funding: Over $23M (FY 2021-2022)
Faculty and Staff:
15 Full-time faculty, 4 Adjunct Faculty, and 3 Staff

CS Offers:
• BS (Bachelors of Science in Computer Science (Concentration in Cybersecurity)
• MS (Track: General Area, AI and Data Science, Cyber Security, Software Engineering)
• PhD
• Online MS in CS and Cybersecurity

Enrollment: 310 Undergrad, 43 MS and 27 PhD students (Fall 2022)
Department of Computer Science

• Research Areas:
  Cybersecurity, AI and Machine Learning, Cyber Identity, Secure Software Engineering, Quantum ML, and Data Science

• Research Centers:
  Center for Cyber Defense-NSA Designated, a National Center of Academic Excellence in Cybersecurity, CAE-CD&R (Roy), Center for Advanced Studies in Identity Science (Anwar), Quantum Computing Research Center (Anwar)

• Research Labs:
  Cyber Defense and AI Lab (Roy), Cyber Identity and Biometrics Lab (Roy), Human-Centered AI Lab (Anwar), Secure Software Engineering and ML Lab (Yuan), Network and Data Science Lab (Xu), AR/VR Lab (Bryant)
Current Projects (Selected)

- Data Science Enabled, Secure and Trustworthy Cyber Identity (ARO, NSF and NSA)
- CyberCorps Scholarship for Service (Renewal): Cyber Defender Program (NSF)
- Tracking User Behavior, Cognitive Burdens, and the Impact of Behavioral Nudging on Security Updates by Young and Older Adults (NSF)
- Secure, Trustworthy, Responsive and Multi-utilization AI for CPS (NSA)
  - DeepFake Detection (NSF and NSA)
  - Secure Cyberinfrastructure (NSA)

Funding Sources:
NSF, NSA, ARO, DoE, ONR, Cisco, NetApp, Palo Alto Networks, Siemens, IBM, Meta, Intel, Google
• Thank you
2022 CRA Conference
MSI Lightning Talk
Snowbird, Utah

Xiwei Wang, Ph.D.
Department Chair, Associate Professor
xwang9@neiu.edu

Department of Computer Science
College of Business and Technology
Northeastern Illinois University
Chicago, IL, USA
Northeastern Illinois University (NEIU) is a designated Hispanic-serving institution (HSI), located in the city of Chicago.

NEIU is a primarily teaching institution that has

- 4 colleges (Arts and Science, Business and Technology, Education, Graduate Studies and Research),
- 40 departments,
- and offers 70 undergraduate and graduate degree programs.
According to the 2022 edition of U.S. News & World Report’s annual “Best Colleges” publication, NEIU is ranked (among Midwest regional universities)

- 5th in ethnic diversity and 10th (tied) in economic diversity.
The Computer Science (CS) Department currently offers

- B.S. in Computer Science with 4 concentrations
  - Computer Science
  - Cybersecurity
  - Data Science
  - Information Technology
  - Networks and Security
- B.S. in Cybersecurity
- Minor in Computer Science
- M.S. in Computer Science
Faculty and Students

Faculty
- 10 Tenured and tenure-track faculty
- 3 Full-time instructors
- 13 Part-time instructors (including adjunct faculty)

Students
- 317 undergrads (18% female) + 65 graduates (37% female)
- 78% minority students and 48.3% URMs
- 78.2% of the undergrads are transfer students
Projects and Partnerships

2021 NSF CISE-MSI: 2 participants, 1 submission, 1 award
Information Systems meet CUltural COmpetencies (IS-CUCO): Enabling data-driven decision-making in underserved Hispanic populations, $1.2M. Dr. Marcelo Sztainberg (NEIU, City Tech, CSU Dominguez Hills, UTEP)

2022 NSF CISE-MSI: 6 participants, 4 submission, 2 possible awards
Privacy Preserving Tutoring System for Health Education of Low Literacy Hispanic Populations, $600K ($153K for NEIU). Dr. Francisco Iacobelli (NEIU, SUNY Old Westbury, Texas A&M Houston, CSU Dominguez Hills)
ACOSUS: An AI-driven COunseling System for Underrepresented Transfer Students, $600K. Dr. Xiwei Wang (NEIU, UTEP, UHV, SUNY Old Westbury, Cal Poly Humboldt)

2021 ASEE Mini Grants: 1 award
Dr. Marcelo Sztainberg

2022 ASEE Mini Grants: 2 awards
Dr. Francisco Iacobelli
Dr. Xiwei Wang
Projects and Partnerships

Chicago CHEC: WeCanManage: An mHealth self-management tool to empower survivors with disabilities due to the long-term effects of cancer and its treatment, $5.1M. Dr. Rachel Adler (Northwestern, NEIU, UIC)

NSF S-STEM: Advancing Computer Science Transfers for Success, $1.5M. Dr. Marcelo Sztainberg (NEIU and local community colleges)

Teacher endorsement - Dept of Ed: Computer Science & Engineering & Design STEM program & K-12 computer science pathway, $40K. Dr. Rachel Adler (collaborating with a local school district to increase K-12 teacher training in Computer Science)

NSF INCLUDES Alliance: Computing Alliance of Hispanic-Serving Institutions, $84K. Dr. Graciela Perera (NEIU and CAHSI institutions)

BPC-A: Computing Alliance of Hispanic-Serving Institutions – Building a Resilient, Sustainable, and Adaptable CAHSI Ecosystem, $47K. Dr. Graciela Perera (NEIU and CAHSI institutions)

Contract courses with Chicago public schools
Dual enrollment with high schools

CAHSI Member in North Region
Questions?
Roosevelt University (HSI)

Department of Computer Science, Information Technology, and Data Science
Roosevelt University

- Roosevelt University is a private institution that was founded in 1945. It has a total undergraduate enrollment around 3000 and around 4000 students in total including graduate students. Its setting is urban, and the campus size is 34 acres. It utilizes a semester-based academic calendar.

- Roosevelt University is a private institution with one campus in downtown Chicago and another nearby in the suburb of Schaumburg, Ill. Students at Roosevelt can major in more than 125 degrees, including about 40 master’s programs.
• Roosevelt University is classified as Hispanic Serving Institution (HSI) according to the U.S. Department of Education. The following data are for our computer science and cybersecurity programs.

<table>
<thead>
<tr>
<th></th>
<th>Hispanic</th>
<th>Black</th>
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<tbody>
<tr>
<td>Undergraduate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>37%</td>
<td>23%</td>
</tr>
<tr>
<td>Cyber Security</td>
<td>40%</td>
<td>16%</td>
</tr>
<tr>
<td>Graduate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>Cyber Security</td>
<td>0%</td>
<td>75%</td>
</tr>
</tbody>
</table>
Roosevelt University has been awarded the following grants to provide support services to underserved students

- McNair Scholars Program ($261,000 per year/5 years)
- Student Support Services STEM grant ($241,000 per year/5 years)
- Title III HSI STEM ($550,000 per year/5 years).

Thus, just from the Department of Education we receive over $1 million a year to support our students. Roughly 8 staff members have been hired off these funds to support our students socially and academically.
Department Info

• Undergraduate programs
  • BS in Computer Science
  • BA in Information Technology
  • BS in Cybersecurity (NSA/DHS CAE-CD)
  • BS in Data Analytics
  • BA in Music and Computing (joint program with Chicago College of Performance Arts, CCPA)

• Graduate programs
  • MS in computer science
  • MS in Cybersecurity
Research Opportunities and Restrictions

• Honor thesis advising for students in honor programs
• Thesis work for both graduate and undergraduate students
• Research projects for both graduate and undergraduate students
• Individual studies
Samples of the research work

• Stock prediction using AI models (MS thesis)
• 3D modeling using Xbox 360 Kinetic camera (Senor project)
• Feeding piano performance recorded in MIDI files to AI analysis
• Strategic design in RPG games (Honor thesis, undergraduate)
• New Galaxy discovery using public NASA database (MS thesis)
Contact information

• Meng Yu, Chair of the department, myu04@Roosevelt.edu
• Michael Ruth, Program director, mruth@Roosevelt.edu
Thanks and Questions?