

# Highlights of UNC Core Research Capabilities for Military Applications

---

## **Biomedical**

Combat medical care, wound healing, biomedical materials and devices, diagnostics and treatment

- UNC Chapel Hill Schools of Medicine, Public Health, Pharmacy
- East Carolina University School of Medicine
- UNC–NC State University joint Biomedical Engineering program
- NC Agricultural and Technical (A&T) State University Biometallic Materials NSF Engineering Research Center
- UNC Charlotte Bioinformatics Center
- NC A&T – UNC Greensboro Joint School of Nanoscience and Nanoengineering
- ECU Operation Re-Entry North Carolina
- UNC Chapel Hill TBI Center
- UNC Wilmington MARBIONIC
- UNC Wilmington Neural Feedback Lab
- NCCU Biomanufacturing Research Institute & Technology Enterprise (BRITE)
- NCCU Julius Chambers Biomedical and Biotechnology Research Institute (BBRI)

## **Chemical Biological Radiological Nuclear (CBRN) Defense**

Detection, decontamination, miniaturized platforms, protective garments, transport modeling, medical countermeasures

- NC State Nuclear Engineering, Chemical & Biomolecular Engineering, Textiles
- NC A&T Chemical, Biological, and Bio Engineering Department
- UNC Chapel Hill School of Pharmacy
- UNC Chapel Hill Chemistry, Biology

## **Optics, Electronics**

Materials and devices for telecommunications, sensing, imaging

- NC A&T Flexible Display Center
- UNC Charlotte Optoelectronics Center
- NC State College of Engineering
- NCCU NASA University Resource Center (URC)

## **Energy & Power**

Energy management and security, microgrid, energy harvesting, advanced energy technologies, renewable energy sources, sustainability

- NC State Future Renewable Electrical Energy Delivery & Management Systems (FREEDM), Advanced Self-Powered Systems of Integrated Sensors & Technologies (ASSIST) Engineering Research Centers
- NC A&T Center for Energy Research and Technology
- NC A&T NSF Biofuels Center
- UNC Chapel Hill Institute for the Environment
- UNC Chapel Hill Environmental Sciences and Engineering
- UNC Chapel Hill Center for Solar Fuels
- UNC Charlotte Energy Production and Infrastructure Center

## **High Performance, Advanced Materials**

Composites, nanomaterials, novel engineered materials, smart fabrics

- NC State College of Engineering, Textiles, Nonwovens Institute
- NC A&T Center for Advanced Materials & Smart Structures
- NC A&T Center for Composite Materials Research
- NC A&T- UNC Greensboro Joint School of Nanoscience & Nanoengineering
- UNC Chapel Hill Institute for Advanced Materials, Nanoscience & Technology (IAM)
- UNC Chapel Hill Analytical & Nanofabrication Lab (CHANL)
- NCCU NSF Center for Research Excellence in Science Technology (CREST)
- NCCU NASA URC

## **Human Performance**

Strength & conditioning, resiliency, injury prevention & rehabilitation, nutrition, physiological monitoring

- Appalachian State University Human Performance Lab
- UNC Chapel Hill Injury Prevention Research Center
- UNC Chapel Hill Exercise & Sports Science
- UNC Greensboro Kinesiology
- NCCU Physical Education and Recreation, Human Sciences – Human Nutrition
- Kannapolis Research Campus

## **Biometrics, Forensics**

Facial & iris recognition, textile and dye forensics

## Highlights of UNC Core Research Capabilities for Military Applications

---

- NC State Forensics Institute
- NC A&T, UNC Wilmington Director of National Intelligence Center of Excellence in Identity Science
- UNC Wilmington Face Aging & Facial Analytics Group
- UNC Wilmington Forensics Group

### **Analytics, Computing, Cybersecurity**

"Big data" analytics, mining, visualization, high performance computing, modeling & simulation, wireless communication, cyber, virtual training, remote sensing & image analysis, GIS terrain modeling & data integration

- UNC Charlotte Visualization Center
- NC State Laboratory for Analytic Science, Institute for Advanced Analytics
- Renaissance Computing Institute
- UNC Charlotte Center for Configuration Analytics and Automation, Cyber Defense and Network Assurability Center
- NC A&T Visualization Center, Center for Cyber Defense
- NC State Computer Science, Digital Games Research Center
- UNC Chapel Hill Computer Science, Project Silver
- UNC Chapel Hill Geography, City & Regional Planning, Anthropology
- NCCU Wireless Communication, Physics/Mathematics, NASA URC

### **Socio-Cultural, Human Factors**

Understanding, predicting and influencing human behavior, agent-based models

- NC A&T Centers for Battlefield Awareness, Decision Making
- NC A&T Center for Human Machine Studies
- NC A&T Center for Human-Centric Command and Control Decision Making
- UNC Chapel Hill-Duke-NC State consortiums (Institute for Homeland Security Solutions)
- UNC Charlotte Complex Systems Institute
- NCSU College of Humanities & Social Science
- UNC Chapel Hill Geography, Mathematics, Computer Science
- UNC Chapel Hill Odum Institute for Social Science Research
- UNC Wilmington Center for Global Conflict Resolution

- UNC Wilmington Team for Interdisciplinary Global Research
- NCCU Psychology, Sociology, Physics/Mathematics, Institute for Homeland Security

### **Military Working Dogs**

- NC State College of Veterinary Medicine

### **Rapid Prototyping, Manufacturing**

Additive manufacturing, metal & plastic prototyping, engineering design

- Western Carolina University Center for Rapid Product Realization
- NC State Industrial & Systems Engineering, Precision Engineering Center
- UNC Charlotte Center for Precision Metrology