Relevant Capability Briefing

Dr. Daryush ILA
Associate Vice Chancellor for Research & Tech Transfer
Fayetteville State University

An Emerging Research Institution
Inventions and Patents put Fayetteville State University on the Research Map

http://www.uncfsu.edu/Research

Daryush ILA, PhD, AVCR & TTO
**Fayetteville State University (FSU)**

POC: Dr. Daryush ILA

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DUNS #: 067188979  ●  CAGE Code: 0KT18  ●  NAICS**  ●  SAM.GOV Registered  ●  SIC: 8221  ●  Federal EIN: 56-1238736  ●  GSA Schedule: 47QRAA19D0032

**About**

- A constituent member of the University of North Carolina System
- Accredited by the southern Association of Colleges and Schools (SACS)
- The student body size is approximately 6,700 and is 68% female, 32% male, 74% minority (59% black, 2% Native American, 2% Asian, 7% Hispanic, 4% other of 2 or more races) and over 25% military or military-affiliated

**Departments, Centers, and laboratories**

- Mathematics and Computer Science (ABET Accredited)
- Chemistry, Physics, Materials Science, Biology, and Forensics Sciences in the College of Health, Science and Technology
- Veteran Business Opportunity Center (VBOC)
- Entrepreneurship Center
- Center for Defense and Homeland Security (CDHS)
- Broadwell College of Business and Economics (BCBE)
- Enterprise Resource Planning (ERP) Advanced Analytics Center

**SBTDC Services**

- Selling to the Government | Government Procurement & Technical Assistance Center (PTAC)
- International Business / Exporting, Private Equity Initiatives, Strategy & Growth Services for Mid-Sized Businesses, Technology Development & Commercialization, Navigating Federal Contracts, Navigating State Contracts, Preparing an effective capability statement, Taking the Leap - Starting your business in 4 weeks

**Advanced Research Laboratories**

- Interdisciplinary Materials Research Laboratory (IMRL)- NSF & DoD
- Prototyping, Validation and Verification Laboratory
- Intelligent Systems Laboratory (ISL)
- Forensics Science laboratory
- Geospatial Intelligence Center (Certificate and degree programs)

**NIACS: 541380, 541512, 541611, 541690, 541714, 541715, 541720, 611310, 611420, 611699, 611710**
**Programs and Degrees**

### Mathematics and Computer Science
- Computer Science (B.S.)
- Computer Science (Minor)
- Cyber Security (Certificate)
- Cyber Security (Minor)
- Engineering 3+2 Dual Degree Program
- Mathematics (B.S.)
- Mathematics (Minor)
- Geospatial Intelligence – GEOINT
- Geospatial Sciences (B.A.)
- Geospatial Sciences (Minor)
- Intelligence Studies (Minor)

### Sciences
- Biology (B.S.)
- Biotechnology (Minor)
- Forensic Science (B.S.)
- 3+2 Chemical, Mechanical, & Civil Engineering (with NCSU)
- Chemistry (B.S.)
- Materials Science (Minor)
- Physics (Minor)
- Pre-Med (minor)

### Business
- Accounting – Online Completion Program
- Accounting (B.S.)
- Banking and Finance (B.S.)
- Business (Graduate Certificate)
- Business Administration (MBA)
- CRED – Career Readiness Enhancement Designation Certificates
- Cyber Security Management (Graduate Certificate)
- Entrepreneurship (B.S.)
- General Business Administration (B.S.)
- Health Informatics (Graduate Certificate)
- Healthcare Administration (B.S.)
- Healthcare Management (Graduate Certificate)
- Information Systems and Business Analytics (B.S.)
- Management (B.S.)
- Marketing (B.S.)
- Project Management (Graduate Certificate)

### Center For Defense and Homeland Security
- Cyber Foundations (Certificate)
- Cyber Security (Certificate CDHS)
- Emergency Management Courses

### SAP University Alliance Program
- **SAP NextGen Lab**
  Connects students, researchers, & startups with SAP customers & partners to develop innovative technologies (DuPont, Goodyear, Mann+Hummel Group, and US Army)
Relevant Capabilities

**Equipment**
- Precision Universal Tester (DoD & NSF)
- Electron Probe Microanalyzer (DoD)
- Hardness Tester (DoD & NSF)
- Atomic Force Microscopy (NSF)
- Photoluminescence (NSF)
- Scanning Electron Microscope (DoD)
- Scanning Tunneling Microscopy
- Nuclear Magnetic Resonance Spectrometers (DoD) - 400 MHz & 90 MHz
- Gas Chromatography-Mass Spectrometry
- Geospatial Intelligence (NGA)
- Ultra-High-Resolution Elemental Imaging
- Geospatial Data Analytics Research (CCDC/ARL and BAH)
- Fourier Transform Infrared Spectrophotometer (FTIR)
- Cluster Computing (NSF & CCDC/ARL)
- Raman Spectrometer
- Anomaly Detection & Human/Robot Trust (DoD) Real-time Location and Security Event Recognition (DoD)
- UV-Visible Spectrophotometer (UV-vis)
- 2 Robotics laboratories
- X-Ray Diffractometer (XRD), and more

**Research and Development Services**
- Materials Characterization
- Imaging
- Synthesis, &
- Analytical Chemistry

**Innovation, Prototyping, Validation & Verification**
Provides Outlets Inventions, for both On-campus and Off-Campus Visionaries

**Enterprise Resource Planning**
Certified training in ERP Systems and Data Analytics to include SAP S/4 HANA (ERP), SAP Cloud Analytics, Oracle ERP Cloud, Windows Dynamics (ERP), SAS Analytics, and ABAP

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Past Performance & Technology Transfer

**Past Performance (Selected)**

- **DoD AFOSR Award No. N00014-15-1-2815**: Analysis of environmental signatures of chemical, biological and high energy explosive products by triplet Quadruple Gas Chromatography Mass Spectroscopy.
- **DoD Award No. W911NF1910487**: Integrating Drones into Geospatial Education to Enhance STEM Skillset for Students at Fayetteville State University.
- **DoD Award No. W911NF1810469**: Radiation Response of Nanoscintillators Using a Cathodoluminescence Spectrometer on an Electron Probe Microanalyzer.
- **DoD AMC Award No. W911QY-19-P-0178**: 3D Printing and Medical Education.
- **DoD MEDCOM Award No. W81K04-12-D-0011**: FSU-Army Master of Social Work Program.
- **DoD DA Award No. H92239-16-D-0002**: A business and economic development course for civil affairs.

**Innovation & Patents (Patents (filed or granted))**

- Silica Based Plant Growth Medium (2)
- High Efficiency Thermoelectric Device (3)
- Agro-tilling for Extreme Environment (2)
- Pest Control Composition (3)
- Product for Pollution Remediation (2)

**Noteworthy awards and accomplishments**

- **iMatSci Innovator Competition**: 3rd place in Innovate Material award after John Hopkins and Harvard University.
- **Innovation Fund North Carolina (IFNC)**, FSU and its SB teammate were five awardees among 127 competitors.
- **NASA-Swarmathon competition** – First place.
- **NASA-MITTIC 2019** – Two FSU Innovations as top 11 finalists.
# Major Contracting Vehicles at FSU

## GSA Schedule/Contract (No. 47QRAA19D0032)
- Provides online shopping and ordering services for all government agencies from Fayetteville State University at pre-accepted/negotiated rates to expedite the process, which includes a large number of consulting services under:
  - **SIN 874-1** “Integrated Consulting Services”
  - **SIN 874-4** “Training Services”

## Cooperative Research and Development Agreement (CRADA)
**Womack Army Medical Center (WAMC) and Fort Bragg Research Institute (FBIR)**
- 10-Year
- Conduct joint R&D of interest to both parties
- Per the SOW of each project
- Provides substantial benefit to the US economy

## Cooperative Research and Development Agreement (CRADA)
**USDA**
- Evaluation of Glycine Soya for Resistance to Diseases, FAIN: 58-6066-8-029-N

## Education Partnership Agreement (EPA)
**Combat Capability Development Command (CCDC)/Army Research Laboratory (ARL)**

## Space Act Agreement (SAA)
**NASA**
- No. SAA1-24186
- Hands-on testing, R&D, Commercialization,
- STEM pipeline development, and more

## Cooperative Research and Development Agreement (CRADA)
**Medical Command (MedCom)**
- Conduct Joint Health/Medical R&D

## Education Partnership Agreement (EPA)
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## Space Act Agreement (SAA)
**NASA**
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- STEM pipeline development, and more

## Hot off the press – NASA (JPL and HQ)
- Mentor/Protégé Agreement
- M-STAR Planning Grant

## Other Mentor Protégé Agreements:
- BAH, ORAU, & Northrup Grumman

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NASA Projects at FSU (from Past to Present)

- Improving Minority Participation in NASA Workforce and STEM Educational Pipeline. NASA-HQ
- Broncos Science, Engineering, Mathematics and Aerospace Academy (SEMAA). NASA Langley Research Center
- Swarmathon Competition. First place - NASA-HQ/KSC
- Innovation and Technology Transfer Innovation Competition - NASA-HQ
  2018. Pathogen Detection - Best Business Case
  2019. Energy Conversion - Finalist/Pandemic Interruption
  2019. Vision on Call - Finalist/Pandemic Interruption
- NASA M-STAR Planning Grant: Planning for Increasing Research and Education in Advanced Systems (PIREAS) – NASA-HQ
- Space Act Agreement - NASA Langley Research Center
  a. STEM pipeline,
  b. Internships, and
  c. Materials Research
- Mentor Protégé (In progress) (Two projects) – NASA JPL
  a. Carbon Dioxide Acquisition and Compression (In-Situ Resource Utilization Lab), and
  b. Sintering using Microwave Technologies (Lunar Regolith Research)
FSU-NAICS codes in SAM.gov

- 541380  Testing Laboratories
- 541512  Computer Systems Design Services
- 541611  Administrative Management and General Management Consulting Services
- 541690  Other Scientific and Technical Consulting Services
- 541714  Research and Development in Biotechnology (except Nanobiotechnology)
- 541715  Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
- 541720  Research and Development in the Social Sciences and Humanities
- 611310  Colleges, Universities, and Professional Schools
- 611420  Computer Training
- 611699  All Other Miscellaneous Schools and Instruction
- 611710  Educational Support Services
Thank you.

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