

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

Associate Vice Chancellor for Research & Tech Transfer

1200 Murchison Road, The Research Office, Fayetteville, NC 910-672-2417

dila@uncfsu.edu

DUNS #: 067188979 ● CAGE Code: OKT18 ● 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

- Business & Management Advice, Financial Assistance, Financial Analysis, Strategy Development & Implementation, Leadership & Employee Performance, Business Launch Initiative
- 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)

Center For Defense and Homeland Security

- Cyber Foundations (Certificate)
- Cyber Security (Certificate CDHS)
- Emergency Management Courses

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)

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)

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)

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

Innovation, Prototyping, Validation & Verification

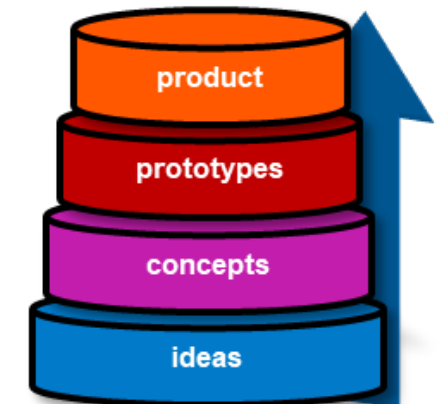
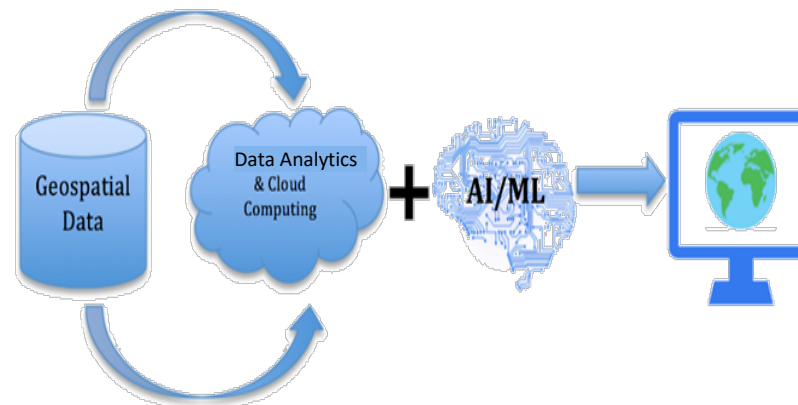
Provides Outlets Inventions, for both On-campus and Off-Campus Visionaries

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

Research and Development Services

- Materials Characterization
- Imaging
- Synthesis, &
- Analytical Chemistry



Past Performance & Technology Transfer

Past Performance (Selected)

- **DoD AFOSR Award No. N00014-15-1-2815:** Analysis 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-tiling 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 2018 – FSU Best Business Case
- NASA-MITTIC 2019 – Two FSU Innovations as top 11 finalists.
- NASA-MITTIC 2020 – “Bio-LIDAR” in progress

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 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)

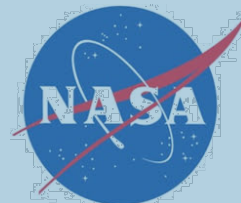
- 10-Year
- Conduct joint R&D of interest to both parties
- Per the SOW of each project
- Provides substantial benefit to the US economy



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)

Combat Capability Development Command (CCDC)/ Army Research Laboratory (ARL)



Cooperative Research and Development Agreement (CRADA)

USDA

Evaluation of Glycine Soya for Resistance to Diseases, FAIN: 58-6066-8-029-N)



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
 - 2020. Laser Assisted Detection & Removal of Bio-Haz --- In progress (Bio-LIDAR)
- 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.

Daryush ILA, PhD

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&

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dila@uncfsu.edu

Office: 910-672-2417