

Capability Statement
Computer Science Department
College of Business and Information Science
Tuskegee University

OVERVIEW

Since the inception of the unit in 1984, the Department of Computer Science has grown in strength, now offering a curriculum for about 100 majors. The Computer Science Department offers Bachelor of Science degrees in Computer Science and Information Technology. The department also offers a Master of Science degree in Information Systems and Security Management, which prepares highly-qualified professionals with both Information Systems Management and Information Security Management expertise. The Master of Science degree in data science option is proposed and is pending approval from the Tuskegee University Board of Trustees. The computer science program is accredited by **the Accreditation Board for Engineering and Technology (ABET)**.

RESEARCH CAPABILITIES

Cybersecurity: The Department also hosts the Tuskegee University (TU) Center of Information Assurance Education (CIAE). The Tuskegee University Center of Information Assurance Education has been designated as a National Center of Academic Excellence in Cyber Defense (CAE-CD) by DHS and NSA. The Center of Information Assurance (CIAE) serves as an organizing body to offer resources and assistance for faculty, students, and community in conducting teaching, research, and other activities in information assurance. Information Assurance/Information Security, Mobile Security, Software & Network Security, Cybersecurity Management, Web Applications Security.

Data Science: Biostatistics/Bioinformatics, Machine learning, Health data analytics, Biomedical image analysis, Text mining, Machine Learning.

High Performance Computing: High Performance Computing with GPGPU Technology, Parallel/Distributed Systems.

RFID and Sensor: RFID Data Cleansing, Indoor space positioning and tracking Data management, Location-based Services (LBS), Spatial and Temporal Data Management.

Software Engineering: Tailoring and automating software process, Agile software development, Personal/MicroISV lightweight software process, Telecom Software Architecture.

Database: Information & Communications Technologies (ICT), Information Systems Management, Database Design

Computer Graphics and Mobile Applications: Mobile Graphics/Computing, Visualization.

Artificial Intelligence.

PAST PERFORMANCE (SELECTIVE FUNDED GRANTS)

The Computer Science Department receives research funding from federal agencies, including NSF, NIH, NASA, DoD, NSA, and private companies, including Microsoft, Raytheon, Xerox, Intel, P&G and Verizon to support faculty and students research in the state-of-art areas.

NSF funded research projects on Cybersecurity, Big Data Analysis, RFID Applications, and Drone Technology; **NIH** funded research project on Health Disparity; **NASA** funded project on Mixed Signal Processing; **DoD** funded project on Intelligence Community Critical Technologies; **NSA** funded projects on Machine Learning; and **Private Industries** funded projects on related research areas.

FACILITIES

The Department of computer Science is located in a new building with the state-of-the-art facilities. A high performance 32-node cluster computer and seven computer labs including multimedia lab, high performance computing lab, software engineering lab, special projects lab, network security lab, and computer forensics lab, provide the students opportunities to use these systems for various courses, projects, and research. Each of the labs consists of thirty-five computers which provide simultaneous access to both Windows and Linux environments. The special project labs (network security lab and forensics lab) are equipped with additional hardware such as, network routers and firewalls, forensics computers, and a cluster of computers with a VLAN, for research activities. All labs and offices are connected to the internet via high speed wired and wireless LANs. Computer Science Department has an 8-compute node plus one master node cluster. The master node is with Dual Intel Xeon E5540 Quad Core 2.53GHz 8MB max RAM speed 1066MHz, 12GB, DDR3-1333 ECC (6 x 2GB) and the Compute Nodes 8 is with Dual Intel Xeon E5540 Quad Core 2.53GHz 8MB max RAM speed 1066MHz and 12GB DDR3-1333 REG, ECC, which provide high performance computing power to the university. A linux server is availalbe for student programming exercises and projects. Students can access this server from off-campus locations to work on homework and assignments. This linux server is a Lenovo ThinkStation D20 with 4G memory, 250G hard-drive and a high end nVidia Quadro FX4800 graphics card.