North Carolina Agricultural and Technical State University
JOB DESCRIPTION FOR POST-DOCTORAL SCHOLAR

Position Title: **Postdoctoral Researcher**
Department: Computer Science
Faculty Mentor/Supervisor: Dr. Justin Zhan

Primary Purpose of Position
The employee will carry out research on Community Detection on Large Networks and Big Data, funded by Army Research Office.

Duties and Responsibilities
The employee will report to Dr. Justin Zhan and will be a member of ILAB (www.ilabsite.org), supporting projects through original research, collaboration with other team members, and mentoring of students. The employee will also contribute to additional proposal efforts, thereby strengthening North Carolina A&T State University's ability to attract external funding.

Army Research Office has awarded the project on the Community Detection in Large Networks. The objective of this project is to invent better models and community detection methods through extensive study of different networked systems using game-theoretic models, network entropy spectral metrics, and eigenvalue analysis. The networked systems will studied as graphs, where nodes represent entities and edges represent interactions. The aim is to discover the better predictive models of networked systems, such as a large social network of people, or large biological and technological systems, in order to understand their structure and make predictions about their global dynamics.

   The employee's principal research responsibilities will be conducting independent research

- Writing research proposals for extramural funding
- Dissemination of research findings via publication in peer reviewed scientific journals and presentations at professional meetings
- Regular and timely discussion with Faculty Mentor about research progress
- Work collaboratively with research faculty and other Postdocs.

The employee will confer with Dr. Justin Zhan on overall research direction and strategy but will exercise a considerable amount of independent judgment and original thinking in carrying out research that contributes to original knowledge and advances the University's reputation in research. The employee will publish research results, in collaboration with Dr. Justin Zhan, in recognized journals. The employee will share student mentoring with Dr. Justin Zhan and will participate in departmental seminars and other professional activities as assigned.

Discretion and Independent Judgment
The employee will have already acquired a Ph.D. in Computer Science, Electronic and Computer Engineering, Computational Science and Engineering, Mathematics, or Physics with strong computational skills, and should be able to exercise scientific judgment on a day-to-day basis. He or she will evaluate incoming information in the form of experimental data and observations, written literature documentation, and oral communications, and will use this information to make judgments about what step(s) will next lead to progress in the project(s).

Supervision
This employee will supervise other student workers.

Supervision Received
The employee will act independently and receive general guidance from Dr. Justin Zhan.

Education, Skills, and Experience Requirements

1. Ph.D. awarded within the last five years in Computer Science, Electronic and Computer Engineering, Computational Science and Engineering, Mathematics, or Physics, specializing in Social Computing and Big Data.
2. A strong theoretical background with evidence of experimental skills related to Large Networks and Big Data.

Appointment

This employee will be appointed to a one-year appointment with the possibility of renewal for up to two additional one-year terms.