



## 2021 Virtual HBCU-UP/CREST PI-PD Meeting



FAMU-FSU  
College of  
Engineering



Research Initiation Award:  
Multifunctional Intracellular  
Nano-Probes based on  
Engineered Bacterial Flagella

Jamel Ali, Ph.D.

Florida A&M University

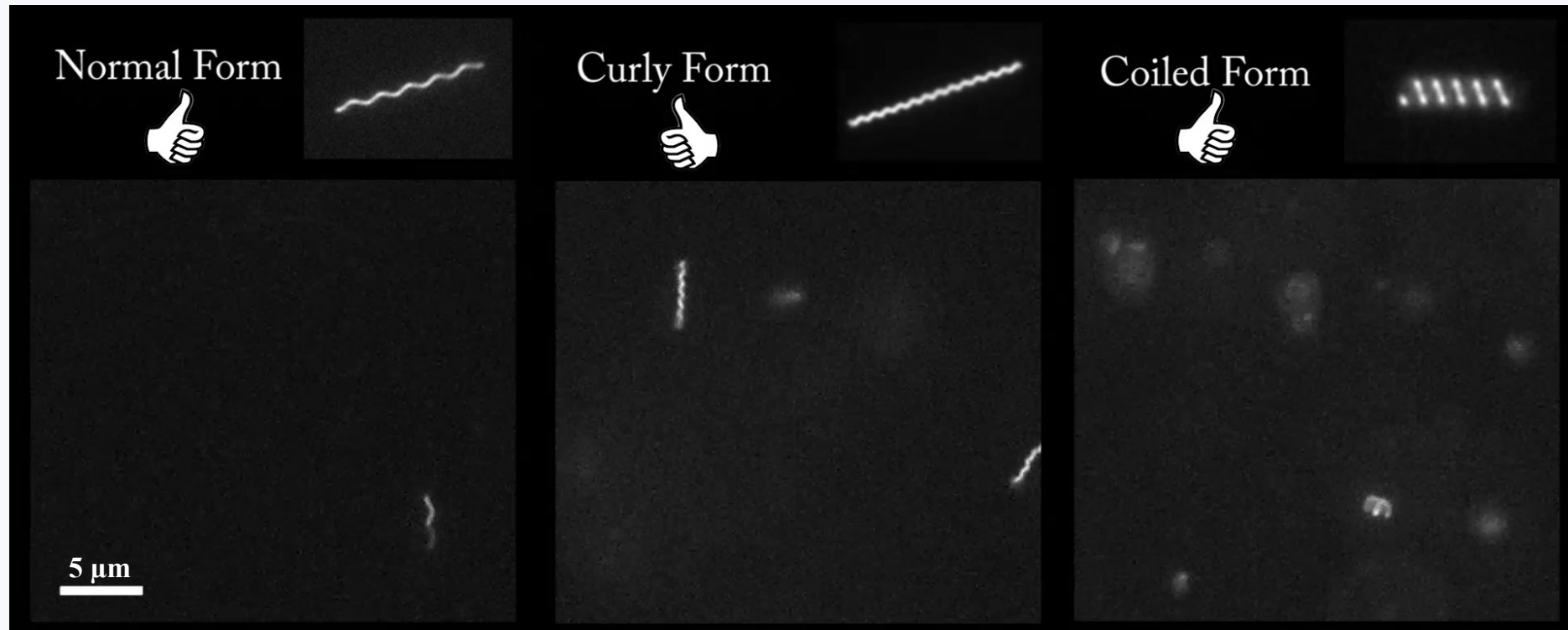
FAMU-FSU College of Engineering

This project is supported by the National Science Foundation grant NSF 2000202

All findings and opinions are those of the authors, not necessarily of the funding agency or AAAS.

# Project Overview

The goal of the project is to develop a strategy for investigating cellular and sub-cellular environments of mammalian cells with high spatial and temporal resolution using engineered bacterial flagella.



# Best Practices/Successes

- Recruitment of 2 African American Ph.D. Chemical and Biomedical Engineering Students



**Annie Scutte**  
Biomedical Engineering  
Ph.D. Student

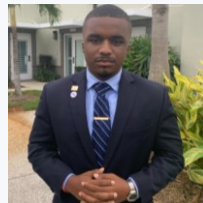


**David Quashie**  
Chemical Engineering  
Ph.D. Student

- Recruitment of 4 African American and Hispanic Undergraduate Chemical and Biomedical Engineering Students



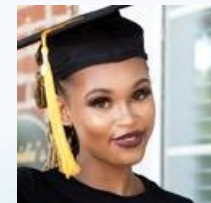
**Saliya Grandison**  
Biomedical Engineering  
Junior



**Jeremy Jack**  
Chemical Engineering  
Junior



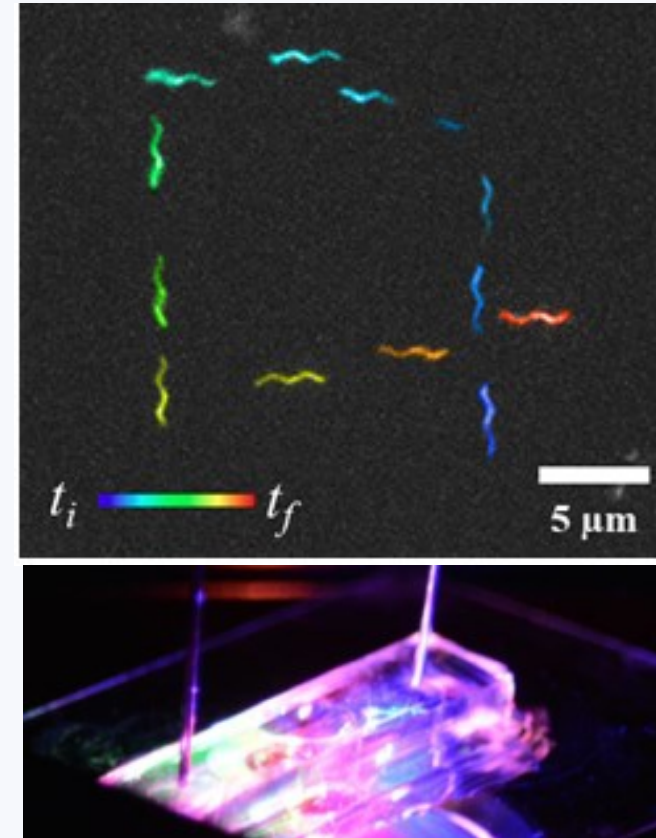
**Sergio Arana**  
Biomedical Engineering  
Senior



**Kiram Harrison**  
Biomedical Engineering  
Freshman

# Implications

- The development of wirelessly controlled soft sensors will enable minimally invasive direct probing of nano scale fluidic environments. Identification of minute physiochemical property changes within local cellular regions will result from this project.



# Identified Gap(s) for Future Collaboration or Enhancement

## New Collaboration with Howard University Chemical Eng.



Patrick Ymélé-Léki, Ph.D.  
Interim-Chair  
Chemical Engineering

Collaborative research on  
Biofilm Adhesive and Kinetic  
Properties Under  
Hydrodynamic Influences  
During Early Evolution Stages

## New Member of FAMU CREST Center for Complex Materials Design (CoManD)



PI: Subramanian Ramakrishnan, Ph.D.



Co-PI: Mandip Sachdeva, Ph.D.



Co-PI: Tarik Dickens, Ph.D.