

TITLE: Analysis and Modeling of Wireless Channels for Wearables and Implants

The Information Technology Laboratory of the National Institute of Standards and Technology is seeking an Associate Researcher with expertise in RF propagation modeling for wireless wearables, implants and ingestible devices. The researcher will develop methodologies, computational models, and programming modules to assess wireless channel characteristics for human lung monitoring and brain-computer interface applications.

Duties:

- Collaboration: Partner with domain experts to design appropriate parametric framework for the scientific problem.
- Computational modeling: Develop models to investigate the performance of a wearable AI system for detecting pulmonary edema.
- Sensitivity analysis: Conduct simulations to investigate the sensitivity of the channel with respect to antenna placement.
- Feasibility of antenna arrays: Conduct simulations and analysis to assess viability of in-body beamforming.
- Technology Transfer: Communicate results via technical publications at select conferences and journals.

Required Skills, Expertise and Qualifications:

- A PhD in Electrical and Computer Engineering, or a related field.
- Familiarity with Body Area Networks, IEEE 802.15.6 and IEEE802.15 TG6ma, wearable and implant antenna design, computational modeling of human tissues and organs, Maxwell-Garnet model, RF propagation channel modeling.
- Experience in coding or using ANSYS HFSS, SCAN IP, XCAT, Python, MATLAB.
- Ability to develop matching computational models for liquid and solid phantoms used in experiments.
- Strong oral and written communication skills.

Employment Terms: This opportunity is to be an associate researcher in the NIST Applied and Computational Mathematics Division for a term of 1 year, with options to renew annually and/or pursue longer term federal employment. Associate researchers are NOT Federal Employees, but they work aside NIST researchers. Relocation expenses will not be provided.

Salary: \$142,000

How to express interest: U.S. Citizens who meet all required qualifications are invited to express their interest in the position by sending a current CV to Kamran Sayrafian via kamran.sayrafian@nist.gov