Staff Associate III
Columbia University in the City of New York

Job Title	Staff Associate III
Department	Biomedical Engineering https://gvnlab.bme.columbia.edu/
Institution	Columbia University in the City of New York New York, New York
Date Posted	Dec. 10, 2025
Application Deadline	Jan. 11, 2026
Position Start Date	Available immediately
Job Categories	Research Scientist/Associate
Academic Field(s)	Biomedical Engineering & Bioengineering Engineering - Other
Job Website	https://apply.interfolio.com/178739
Apply Online Here	https://apply.interfolio.com/178739
Apply By Email	

Job Description

The Department of Biomedical Engineering is looking for a Staff Associate III. This position is available in the Laboratory for Stem Cells and Tissue Engineering by Dr. Gordana Vunjak-Novakovic.

We are looking for a highly motivated Research Engineer skilled in computational modeling and basic laboratory techniques to join our dynamic laboratory team. We are working on multiple tissue engineering projects for improving human health. Please see our website for more information: gvnlab.bme.columbia.edu

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We expect the Staff Associate III to lead the development and application of advanced computational models to simulate, predict, and optimize novel micro-bioreactors and cell culture protocols. This role will focus on creating sophisticated "digital twins" of our tissue engineering systems by integrating COMSOL multiphysics simulations with machine learning models derived from experimental data.

1) Functional Knowledge and Technical Expertise (50%)

a. COMSOL Modeling: Design, build, and run COMSOL Multiphysics simulations to model key processes within novel micro-bioreactors. This includes accurately modeling fluid dynamics, mass transport (e.g., oxygen, nutrients, metabolites), and other relevant physical parameters influencing the cell culture environment.

b. Digital Twin Development: Utilize programming and data science skills (e.g., Python, R, TensorFlow) to develop, train, and validate machine learning (AI) models. These models will integrate real-time or periodic measurements from various cell culture assays (e.g., metabolic, imaging, 'omics data) to create predictive, digital twins of the bioreactor system.

2) Problem Solving Skills (30%)

a. Model-Driven Optimization: Use simulation and digital twin outputs to analyze process parameters, predict cell behavior, and guide the design of optimized cell culture protocols and next-generation bioreactors.

3) Communication Skills (10%)

a. Data Analysis & Reporting: Rigorously analyze and interpret complex simulation data. Prepare detailed reports, technical summaries, and figures for internal meetings, grant applications, and scientific publications.

b. Documentation: Maintain meticulous records of model code, simulation parameters, and validation results, potentially adhering to GLP-like standards for data integrity.

4) Decision Making and Autonomy (10%)

a. This person will be expected to perform experiments, duties, and responsibilities as assigned and requested with minimal oversight.

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Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

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