Advanced Modelling and Control Research Associate

The Manufacturing Process Analytics & Control (MPAC) team in Pfizer's Global Technology Services (GTS) has an opening for an Advanced Modelling and Control Research Associate contractor position. This position will be based in Peapack, NJ, and requires travel up to 15% of the time.

PhD students (preferably in the final year of study) and academic Post Doc researchers are welcome to apply for this position. Successful candidate will use their skills to leverage data analysis, mathematical modeling, simulation, control strategy/system design, and computer programming as a means of supporting multiple advanced manufacturing projects related to pharmaceutical processes. The responsibilities include creating required documentation supporting process modeling activities, and performing lab/pilot scale experiments such as unit operations set up, calibration of analytical techniques, sampling and data acquisition with minimal supervision.

Basic Qualifications

- Advanced degree in engineering or similar fields, with research emphasis in advanced process modeling, optimization, and/or control
- Strong knowledge of
  - Various modeling techniques including first-principles, empirical, data-driven, and hybrid models
  - Time series analysis theory and identification of discrete models for dynamic systems
  - Applied statistics, regression theory, probability
  - Applied mathematics and numerical methods
  - Applied advanced control and optimization skills: system identification, controller design, controller tuning, testing and implementation, controller performance assessment
  - Programming and computer skills: Python, JavaScript, MATLAB, Java
- Independent, self-motivated personality with excellent oral and written communication skills
- Ability to work collaboratively in a team environment with open attitude towards fast learning

Preferred Qualifications

- Experience with artificial intelligence and machine learning techniques and familiarity with related libraries (e.g. tensor flow)

- Knowledge of any of the following engineering principles: Reaction Kinetics, Reactor Design, Chemical Thermodynamics, Heat and Mass Transport, Engineering Statistics, Modeling and Simulation
- Hand on experience with Process Analytical Technologies (PAT) such as NIR or Raman spectroscopy and chemometrics modeling
- Classic and advanced process control theory, state estimation, optimization and automation, controller performance assessment
- General familiarity with the Pharmaceutical Industry and related unit operations
- Working experience with commercial Software: ThingWorx, PharmaMV, DeltaV, gPROMS, SIMCA, OSI PI, Flow sheet simulation packages

Responsibilities

- Contribute to multiple high impact projects that require data analysis, advanced modeling, optimization, and control expertise
- Develop mathematical models of pharmaceutical unit operations, gather data for model calibration, program functional applications for real-time implementation,
- Support installation/operation/performance qualification and model validation and author required documentation
- Apply engineering principles, modeling tools, and experimental skills using data-rich lab/pilot/manufacturing instrumentation to improve process understanding and assess proposed process controls
- Interface with cross-functional teams and project stakeholders, communicate progress with team members, and drive the project progress in a timely manner