IITI DRISHTI CPS Foundation
(A Section 8 - Not for profit Company)

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Project Research Scientist and Project Assistant

Position: Project Research Scientist

We are seeking a candidate for the position of Project Research Scientist who will be responsible for leading research and development activities related to the creation of Digital Twins (DTs) for ICU ventilators and patient respiratory systems. This ICMR-funded project seeks to develop an integrated system for personalized and proactive mechanical ventilation for neurotrauma patients. The project involves constructing digital twins (DTs) of ICU mechanical ventilators and patients' respiratory systems to predict health deterioration and ventilator failures. The focus will be on utilizing AI/ML techniques to process heterogeneous data and create probabilistic models for proactive ventilator maintenance and patient risk assessment. The role involves close collaboration with interdisciplinary teams and partners to achieve project objectives.

Roles and Responsibilities

- Expertise in digitalization and digital twin technologies.
- Collaborate with healthcare professionals and engineers to construct a digital twin of patients' respiratory systems, analyze medical images (X-rays, CT scans), patient vitals, and other clinical parameters to create personalized digital twins of neurotrauma patients.
- Use the digital twin model to forecast hospital mortality and identify risk factors in ventilated ICU patients.
- Integrate real-time patient data and develop an optimized system for ventilator performance adjustment through simulation.
- Lead the design, development, and implementation of the Digital Twin (DT) for ICU ventilators and other critical care equipment.
- Conduct detailed analysis and simulation of ventilator data to model and predict performance issues.
- Develop and validate algorithms for predictive maintenance.
- Prepare technical reports, research papers, and documentation.
- Present findings to stakeholders, and partner institutions.
- Mentor and guide junior researchers and project assistants involved in the project.

Qualification

Essential
- Ph.D. or Master's degree with 2-3 years of experience in Biotechnology and Biomedical Engineering, Mechanical Engineering, Computer Science, Electronics, Data Science or a related field evident from past work experience.

Desirable

- Minimum of 2-3 years of experience in digital twin technology, predictive maintenance, AI/ML, or related research areas. Strong programming skills in Python, MATLAB, or similar languages.
- Experience in healthcare technology development
- Experience with data analysis, modeling, and simulation techniques.
- Familiarity with ICU ventilator systems and their operational dynamics.
- Publications in relevant high-impact journals.

Compensation: Upto 56,000 per month + 18% HRA

Position: Project Assistant

The Project Assistant will support the research and development activities related to the Digital Twin (DT) project. This project aims to develop an integrated system for personalized ventilation management using digital twins of mechanical ventilators and neurotrauma patients' respiratory systems. The goal is to detect early warning signals of patient health deterioration and ventilator failure through AI/ML techniques and to optimize ventilator performance. The role includes data collection, model implementation, and testing under the supervision of the Project Research Scientist.

Roles and Responsibilities

- Support the development of digital twins by gathering and organizing real-time patient and ventilator data.
- Participate in testing and validating AI/ML models for ventilator and patient respiratory system simulations
- Assist in data collection and preprocessing from ICU ventilators.
- Implement and test various components of the Digital Twin model.
- Conduct routine analysis and validation of the DT model.
- Document the research process and maintain accurate records of experiments.
- Support the preparation of reports and presentations.
- Coordinate with team members and external partners to ensure smooth project execution.

Qualification

Essential
- Bachelor's or Master's degree in Biotechnology and Biomedical Engineering, Mechanical Engineering, Computer Science, Electronics, Data Science or a related field evident from past work experience.

Desirable
- Basic programming skills in Python, MATLAB, or similar languages.
- Strong analytical and problem-solving skills.
- Ability to work collaboratively in a team environment.
- Experience with data analysis, modeling, and simulation techniques.
- Familiarity with ICU ventilator systems and their operational dynamics.
- Publications in relevant high-impact journals.

Compensation: Upto 30,600 per month (with a 5% salary increase in the 3rd year)

Duration: 3 years

Interested candidates may click here to submit the application.
Positions are for 3 years. Only shortlisted candidates will be called for a written test/interaction/interview. Mere fulfillment of the eligibility criteria does not entitle an applicant to be shortlisted. All the applications will be thoroughly evaluated for suitability with the company's requirements. The company reserves the right to not fill up /cancel the post advertised without assigning any reason. In case of selection the role will be finalized by the selection panel and the decision will be binding. The position is contractual, full time in nature and subject to periodic performance reviews.