Research Fellow / Engineer (3D-printed propellers x NAMIC) - TZY8
Singapore Institute of Technology

Job Title Research Fellow / Engineer (3D-printed propellers x NAMIC) - TZY8
Department Engineering
Institution Singapore Institute of Technology
Singapore, , Singapore

Date Posted Apr. 1, 2025

Application Deadline Open until filled
Position Start Date Available immediately

Job Categories Research Scientist/Associate

Academic Field(s) Naval Architecture & Marine Engineering
Mechanical Engineering

Job Website https://careers.singaporetech.edu.sg/cw/en/job/498890/research-fellow-engineer-3dprinted-propellers-x-namic-tzy8

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Job Description

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Job no: 498890
Department: Engineering
Contract type: Contract
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As a University of Applied Learning, SIT works closely with industry in our research pursuits. Our research staff will have the opportunity to be equipped with applied research skill sets that are relevant to industry demands while working on research projects in SIT.

The researcher will be part of the team of the NAMIC Project for 3DP Propeller. The Research Engineer will play a critical role in the development, validation, and optimization of 3D-printed propellers. This includes conducting hydrodynamic analysis, finite element modeling, as well as overseeing site-based test bedding, data collection, and reporting. The role also involves evaluating the performance of propeller using Response Surface Methodology.

Key Responsibilities

- Participate in and manage the research project with Principal Investigator (PI), Co-PI and the research team members to ensure all project deliverables are met.
- Undertake these responsibilities in the project:

1. **Hydrodynamic Analysis:**

- Conduct simulations to analyze propeller performance, vessel resistance and propulsion using CFD
- Optimize designs for properller dynamic environmental conditions (e.g., waves, tides, currents).

2. **Finite Element and Structural Modeling:**

- Develop and implement finite element models to evaluate structural integrity of propeller under load conditions.
- Perform stress, strain, and fatigue analysis for modular components and connectors.

3. **Response Surface Methodology (RSM)**

- Evaluating performance of propeller and optimizing propeller design using predictive models
- Identifying optimal factors for enhanced propeller performance

4. **Site Test Bedding and Validation:**

- Oversee the deployment and testing of propeller system via experimental test and sea trial
- Ensure proper instrumentation setup for data collection and monitoring.

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5. **Data Collection and Analysis:**

- Gather experimental data during site trials, including hydrodynamic, structural, and environmental parameters.
- Analyze data to validate models and identify areas for design improvement.

6. **Reporting and Documentation:**

- Prepare detailed technical reports on findings, including recommendations for system enhancements.
- Present outcomes and progress updates to stakeholders and collaborators.

7. **Collaboration and Communication:**

- Work closely with multidisciplinary teams, including material scientists, engineers, and field technicians.
- Liaise with external partners and vendors for test site setup and equipment.

8. **Compliance and Safety:**

- Ensure compliance with regulatory requirements and industry standards for floating structures.
- Maintain high safety standards during field operations and laboratory testing.

9. **Research Documentation and Dissemination**:

- Prepare technical reports, research papers, and presentations to disseminate findings to academic and industry stakeholders.
- Contribute to project proposals and progress updates for funding agencies.
- Carry out Risk Assessment, and ensure compliance with Work, Safety and Health Regulations.

10. **Project Management Support**:

- Ensure timely execution of project milestones
- Coordinate with external collaborators and manage data-sharing protocols.
- Work independently, as well as within a team, to ensure proper operation and maintenance of equipment.

Job Requirements

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- Master/PhD in Naval Architecture, Marine Engineering, Mechanical Engineering or related field.
- Proficiency in hydrodynamic modeling tools (e.g., ANSYS/Star CCM/Fluent/Open Foam etc.) and finite element analysis software (e.g., Abaqus, ANSYS).
- Familiarity with 3D printing technologies and materials is advantageous.
- Strong analytical skills and familiarity with data collection instruments and techniques.
- Excellent communication and report-writing abilities.
- Ability to work independently and in teams in both lab and field environments.
- Excellent communication (verbal and written) and teamwork abilities

Key Competencies

- Able to build and maintain strong working relationships with people within and external to the university.
- Self-directed learner who believes in continuous learning and development
- Proficient in technical writing and presentation
- Possess strong analytical and critical thinking skills
- Show strong initiative and take ownership of work

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Advertised: 01 Apr 2025 Singapore Standard Time
Applications close: 31 Dec 2025 Singapore Standard Time

Contact Information

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

Contact

Singapore