# Numerical modeling and simulation of gas separation processes by distillation under subsea condition
Universidade de São Paulo



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| **Job Title** | Numerical modeling and simulation of gas separation processes by distillation under subsea condition |
| **Department** | Departamento de Engenharia Naval<br>https://ppgen.poli.usp.br/ |
| **Institution** | Universidade de São Paulo<br>São Paulo, , Brazil |
| **Date Posted** | Apr. 15, 2025 |
| **Application Deadline** | Jun. 1, 2025 |
| **Position Start Date** | Available immediately |
| **Job Categories** | Post-Doc |
| **Academic Field(s)** | Naval Architecture & Marine Engineering |
| **Job Website** | https://www.linkedin.com/company/otic-offshore-technology-innovation-center/ |
| **Apply By Email** | otic.jobs@usp.br |

**Job Description**

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The CO? content is very high in the pre-salt natural gas (NG) reserves in Brazil, reaching values close to 60% in molar fraction. Offshore CO? separation is highly attractive for oil companies, as it facilitates CO? injection into the sea, reducing the amount of greenhouse gases released into the atmosphere. The most common devices for CO? separation, such as amine units and membrane modules, are more suitable for lower CO? percentages than those typically found in NG extracted from pre-salt reserves. Furthermore, the size of these devices increases with the amount of CO? removed, thus occupying a large area of the platform deck. Having a robust system that can be installed subsea, with low complexity and little need for maintenance, is of great interest to the oil and gas industry in Brazil, as it promotes CO? capture and facilitates CH? utilization.

The researcher will be dedicated to the modeling and numerical simulation of the gas separation process by distillation (flash separator type). Given the diversity of approaches in this project, many methods will be employed. Traditional design methods and norms will be used for the conceptual design of the equipment, considering that it will be installed subsea. Regarding the numerical models and simulations, high-fidelity CFD models will be employed, which consider the physics of multiphase flows, condensation, and phase slip (for separation).

PhD in engineering or a field related to the project.
Knowledge and proficiency in numerical methods for simulation of distillation processes and computational fluid dynamics.
English communication skills.
Availability to work in São Paulo at USP.

**Contact Information**

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

**Contact** Offshore Technology Innovation Centre - OTIC
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