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Modelling and experimental investigation of horizontal buoyant gas jets injected into stagnant uniform ambient liquid

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Highlights

- An experimental and theoretical study on buoyant non-condensable gas jets injected horizontally into a high-density liquid ambient at different initial conditions are considered.
- Direct and instantaneous global measurements of the interface between the jet and ambient were performed using a high-speed photography.
- An integral model was developed to predict the jet parameters: trajectory, spread, jet angles and penetration lengths as well as the jet regimes.
- An overall good agreement was obtained between the simulation and experimental results over a large range of Froude numbers and jet diameters.
- The developed model has proven to be an adequate tool to predict the different jet parameters.

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