

# Xu Duan

(737) 341-7377 | [xudian@utexas.edu](mailto:xudian@utexas.edu) | <https://xu-duan.github.io>

## EDUCATION

### The University of Texas at Austin

Aug. 2024 - May. 2026 (Expected)

- Master Student, Mechanical Engineering, Dynamic System and Control Area
- Co-Advised by [Dr. van Oort](#) and [Dr. Chen](#)

### Shanghai Jiao Tong University

Sep. 2019 - Jul. 2023

- Bachelor of *Engineering* in Naval Architecture and Marine Engineering (Major ranked #1 globally)
- GPA: 3.79/4.0, 89/100

**Highlighted Coursework:** *Finite Element Method, Computational Fluid Dynamics, Marine Structural Mechanics, Marine Hydrodynamics, Advanced Thermodynamics, Thinking and Approach of Programming (C++), Data Structures (C++), Engineering Analysis, etc.*

## HONORS & AWARDS

Philip C. and Linda L. Lewis Foundation Graduate Fellowship

Aug. 2024

CCS (China ship Classification Society) Scholarship

Sep. 2022

Shengshen Scholarship

Sep. 2021

CCS (China ship Classification Society) Scholarship

Sep. 2020

## INTERNSHIPS

### The University of Texas at Austin

Aug. 15, 2024 - Now

*Graduate Research Assistant*

*Supervisor:* [Dr. van Oort](#)

- Developed a two-phase fluid model to study the hydraulics and thermodynamics in the well. The model's solution, calculated using the Finite Volume Method (FVM), accurately predicted pressure profile, flow out rate and temperature with relative error less than 5% compared with experimental data set.
- Implemented a control model for the bottomhole pressure and temperature, mitigating blowout risks.

### Haipeng Marine Engineering (Shanghai) Co.

Jul. 01, 2023 - Aug. 31, 2023

*Engineering Intern*

- Marine environmental assessment, including data collection and analysis of marine environment;
- Performed hydrodynamic and structural analysis of marine structures, including marine platforms and marine pipelines, with HydroStar and Abaqus to calculate the hydrodynamic load and motion.

## PROJECTS

### Design and Calculation of the Driving Gear for an Automobile

- Committed to the simulation of the gear's motion and the verification of the gear's strength;
- Reasonably applied knowledge of Matrix Theory, Structural Mechanics and Dynamics;
- Judged the structural strength to select the steel materials based on simulation results, calculated using the Finite Element Method (FEM), simulated based on Abaqus.

### Shallow Water Wave Simulation with FVM

- Conducted simulations of shallow water waves using the Finite Volume Method (FVM) with the open-source software FUNWAVE on a Linux system;
- Utilized numerical techniques to solve complex partial differential equations governing water flow.

### Heat Transfer Simulation of Engine

- Modeled engine using Rhino to describe the complex geometry;
- Performed simulations using deal.II, an open-source finite element library, on a Linux system;
- Utilized parallel computing techniques in deal.II to accelerate simulations.

### Control System Design for an Underwater Robot

- Committed to establish mathematical model and simulation of 6-DOF underwater robot with Simulink;
- Performed the design of the Proportional Integral Differential (PID) control system according to the deviations of the actual position of the robot from the target position.

## OTHER INFORMATION

**Languages:** Fluent in English (IELTS 7.0, GRE 336/4.0), Native in Chinese (Simplified).

**Programming:** Proficient in Python, C/C++, Linux, MATLAB, Fortran

**Software:** Ansys, Abaqus, OrcaFlex, Solidworks, Rhino, AutoCad, Microsoft Office suite

### Transferable Attributes:

- Superior diagnostic skills for issues and innovative invention practices;
- Capacity to coordinate and optimize solutions and conduct flexible commissioning;
- Collaborative teamwork skills;
- Foresight and vision to evaluate the complexity of projects.