SERAG-ELDIN ABDELMOTELEB

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Address: Frode Rinnans veg 76, 7050, Trondheim
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EDUCATION

PhD Institutt for marin teknikk (IMT), NTNU
Expected completion date: May 2024
Title: "Design of Large Floating Substructures for Supporting Future Generation Offshore Wind Turbines"
Main supervisor: Prof. Erin E. Bachynski-Polić
Co-supervisor: Prof. Amir Nejad

MSc Alexandria University, Naval Architecture and Marine Engineering Department
Completed: January 2020
Thesis: "Hydrodynamic Analysis and Optimisation of a Novel Wavergy Device for Wave Energy Conversion"
Supervisors: Prof. Yousri Welaya, Prof. Tamer Ahmed
Coursework GPA: 3.582

BSc Alexandria University, Naval Architecture and Marine Engineering Department
Completed: July 2014
Grade: Very good, with honors (Graduated Top of Class)

EXPERIENCE

Institutt for marin teknikk (IMT), NTNU
Duration: Jan. 2021 to Present
Position: PhD candidate

Design progress:
- Preliminary sizing of two semi-submersible designs to support a 25MW wind turbine.
- Coupled models for the preliminary designs in OpenFAST and SIMA.

Tool development:
- 2D floating wind platform sizing tool based on eigenvalue analysis (Python package)
- Hydrodynamic diffraction/radiation pressure mapping for coupled finite element analysis including substructure flexibility modeled as beam elements.
- Introduced a frequency domain lumped mass model to the open-source quasi-static mooring analysis tool MoorPy and verified the model against coupled simulations.
- A frequency-domain analysis tool for floating wind turbines including rotor aero-servo dynamics (currently being developed as a python package and linked with MoorPy)
- Python automation scripts for OpenFAST, NEMOH, WAMIT, and SIMA.

Planned outcomes:
- Reference platform, tower, and mooring designs for supporting a 25MW wind turbine.
- Frequency-domain analysis Python package for floating wind turbines optimization.
- Global structural analysis of the preliminary designs based on coupled simulations.

Alexandria University, Faculty of Engineering
Duration: Oct. 2014 to Apr. 2015, Oct. 2017 to Dec. 2020
Position: Teaching Assistant at the Naval Architecture and Marine Engineering department
Courses:

- Fluid mechanics I/II
- Marine Hydrodynamics
- Ship propulsion systems
- Naval architecture
- Ship design
- Marine hydraulics
- Programming (Labview and Matlab)
- Ship drawing

Other Duties:

- Fluid mechanics Lab demonstrator

Mandatory Military Service at the Salvage and Rescue department of the Egyptian Navy
Duration: May 2015 to Sep. 2017
Position/ Rank: Naval Architect/ First lieutenant
Duties:

- Salvage analysis and assessment for multiple grounding and capsizing incidents
- Modeling of naval units for intact and damage stability analyses
- Assisting in the preparation of teaching material for officers

PROGRAMMING SKILLS

Proficient with:

- Python
- Matlab

Familiar with:

- C
- FORTRAN

SOFTWARE SKILLS

Proficient with:

- Wind turbine coupled analysis: OpenFAST/ SIMA
- Hydrodynamic analysis: NEMOH/ WAMIT/ ANSYS AQWA/ HydroD/ Maxsurf
- Wave energy converters analysis: WEC-Sim

Familiar with:

- CFD: ANSYS Fluent/ OpenFOAM
- FEA: ANSYS Mechanical
- CAD: Salome/ AutoCAD/ Rhino

ONLINE DEGREES

Data Analysis (with Python) Professional Nanodegree from Udacity
Completed: September 2020
Length of program: 55 days
Certificate link: https://confirm.udacity.com/LDGPTCD5

PUBLICATIONS

Conference Papers

Abdelmoteleb, S. E., Mendoza, A. S. E., dos Santos, C. R., Bachynski-Polić, E. E., Griffith, D. T., & Oggiano, L. (2022, November). *Preliminary sizing and optimization of semisubmersible substructures for future generation offshore wind turbines*. In Journal of Physics: Conference Series (Vol. 2362, No. 1, p. 012001). IOP Publishing.

For contributions to other publications please check:
https://scholar.google.com/citations?user=UTvL-t8AAAAJ&hl=en

LANGUAGES

Arabic: Native Language
English: Fluent

REFERENCES

Available upon request.