**Curriculum Vitae**

Daniel Hyoung-Chul Kim

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**EDUCATION**

*Texas A&M University*, College Station, USA 2011-2018 May

Ph.D. in Ocean Engineering (GPA 3.74/4.0)

Thesis: Global performances and structural health monitoring method of single unit or multi units floating offshore wind turbines

Advisor: Prof. Joseph Moo-Hyun Kim

*Seoul National University*, Seoul, South Korea 2000-2007

M.S. in Naval Architecture and Marine Engineering (GPA 3.75/4.3) 2007

B.S. in Naval Architecture and Marine Engineering (GPA 3.14/4.3) 2004

**RESEARCH EXPERIENCE**

***Postdoctoral Research*** *- Advisor: Prof. Kommalapati, Raghava*

Center for Energy and Environmental Sustainability, Prairie View A&M University (USA)

2018 June-present

* Developing and testing structural health monitoring methodology of floating offshore wind-turbine (FOWT) with numerical sensor using Machine Learning and Operational Modal Analysis
* Developing innovative method for integrated and comprehensive blade and platform design analysis of FOWT including blade pitch control, elasticity, and dynamics using CFD, BEM, and panel method

***Postdoctoral Research*** *- Supervisor: Dr. Sung Youn Boo*

VL Offshore, Houston (USA) 2018 July-present

* Developing preliminary structural and mooring design concept of 1MW WEPTOS type wave energy converter (WEC)
* Performed mooring fatigue analysis of 1MW WEPTOS type wave energy converter (WEC)
* Performed hydrodynamic analysis of 6MW TX-Wind TLP FOWT

***Doctoral Research*** *- Advisor: Prof. MooHyun Kim*

Ocean Engineering Department, Texas A&M University 2011-2018 May

* Developed the structural health monitoring method of floating offshore wind-turbine (FOWT) using operational modal analysis (OMA) and modal properties with numerical sensors
* Clarified the effect of non-linear wave force and blade pitch control on FOWT dynamics in the numerical simulation
* Performed the coupled dynamic analysis of various kinds of FOWT (semi-submersible, spar, TLP, and multi-units floating offshore wind turbine) and three semi-submersible FOWT types (DeepCWind, WindFloat, Y-Wind)
* Validated the coupled analysis tools for FOWT and MUFOWT (Multi-units FOWT) comparing the numerical simulation results to the model test results.
* Studied the performance change of FOWT with broken mooring line or broken wind blade using the numerical simulation
* Developed methodology to apply wake effect of upstream turbine on downstream turbine in multi-units FOWT to numerical simulation tool
* Delivered an anchor selection program for FOWT according to the mooring type and soil status
* Calculated local wave forces applied to the FOWT for the structural analysis by using Morison equation
* Performed multi-body dynamic analysis between Buoy and WEC body for 1MW WEPTOS type WEC
* Attended to develop and test a newly designed semi-submersible FOWT concept, Y-Wind FOWT, by using the numerical simulation and 1:50 scaled model test

**TEACHING EXPERIENCE**

***Instructor:* Ocean Engineering Department, Texas A&M University Spring 2018**

* **Mechanics of Deformable Bodies**

*Seminary Speaker:* Prairie View A&M University April 2018

* Global Performances and Structural Health Monitoring Method of Single Unit or Multi Units Floating Offshore Wind Turbines

*Lecturer:* Offshore System Simulation Lab., Texas A&M University 2015-2017

* Theory and application of hydro dynamic numerical simulation

*Instructor:* Bangladesh Institute of Marine Technology (Bangladesh) 2008-2009

* Auto CAD

**AWARDS**

**Graduate Teaching Fellowship** (Texas A&M University) Spring 2018

ISOPE Scholarships for Outstanding Students 2017

American Bureau of Shipping Scholarship 2012-2017

Merit based scholarship (Texas A&M University) 2011

Merit based scholarship (Seoul National University) 2004 & 2006

Enterprise scholarship (Hyoundai Heavy Industry) 2005

**JOURNAL and PROCEEDING PAPER**

**Journal**

Mar. 2018. **H.C. Kim** and M.H. Kim, The Effects of Blade-Pitch Control on the Performance of Semi-submersible- type Floating Offshore Wind Turbines, J. Ocean Syst. Eng. 1(6) 79-99.

Mar. 2017. **H.C. Kim**, K.H. Kim, M.H. Kim, and K. Hong. "Global performance of a KRISO semi-submersible multi-units floating offshore wind turbine; numerical simulation vs model test" J. Offshore and Polar Engineering.

Jan. 2017. Y.H. Bae, M.H. Kim, and **H.C. Kim**. "Performance changes of a floating offshore wind turbine with broken mooring line" J of Renewable Energy. Vol 101., 364-375.

Jun. 2016. **H.C. Kim** and M.H. Kim, Comparison of simulated platform dynamics in steady/dynamic winds and irregular waves for OC4 semi-submersible 5MW wind turbine against DeepCwind model test results, J. Ocean Syst. Eng. 6 (1) 1-21.

Sep. 2015. **H.C. Kim** and M.H. Kim, Global performances of a semi-submersible 5MW windturbine including second-order wave-diffraction effects, J. Ocean Syst. Eng. 5(3) 139-160.

(Under Review) **H.C. Kim**, M.H. Kim, and D.E Choi, Structural Health Monitoring of Floating Offshore Wind Turbine Using Operational Modal Analysis and Difference in Modal Properties from Numerical-sensor Signals, J. Renewable Energy.

(In Preparation) **H.C. Kim** and M.H. Kim, Structural Health Monitoring of Floating Offshore Wind Turbine by Using Operational Modal Analysis in the Operational Condition.

**Proceeding Paper**

Feb. 2018. **H.C. Kim** and S.Y.Boo, “Coupled And Uncoupled Analysis Of Y-Wind Semi Wind Turbine Foundation”, Proceedings of the 23rd Offshore Symposium, SNAME

Feb. 2018. S.Y. Boo, **H.C. Kim**, Shelly AS, and D. Kim. “Preliminary Design and Analysis of Mooring Buoy for an Arrayed WEC Platform”, Proceedings of the 23rd Offshore Symposium, SNAME

June. 2017. **H.C. Kim**, M.H. Kim, J.Y. Lee, E.S. Kim, and Z. Zhang. “Global Performance Analysis of 5MW WindFloat and OC4 semi-submersible floating offshore wind turbines (FOWT) by Numerical Simulations”, Proceedings of the 27th International Ocean and Polar Engineering Conference.

June. 2016. **H.C. Kim**, M.H. Kim, K.H. Kim, K. Hong, and Y.H. Bae, "Global performance of a squaretype semi-submersible KRISO multi-unit floating wind turbine; numerical simulation vs model test." Proceedings of the 26th International Ocean and Polar Engineering Conference

June. 2015. **H.C. Kim**, H.K. Jang, M.H. Kim, and Y. H. Bae, “Coupled dynamic analysis of a MUFOWT with transient broken-blade incident,” Proceedings of the 25th International Ocean and Polar Engineering Conference

June. 2015. H.K. Jang, **H. C. Kim**, M. H. Kim, and K. H. Kim, “Coupled dynamic analysis for multiunit floating offshore wind turbine in maximum operational and survival conditions,” Proceedings of the 34th International Conference on Ocean, Offshore and Arctic Engineering

(Abstract Submitted) **H.C. Kim**, D.E. Choe, M.H. Kim, “Structural Damage Detection of Floating Offshore Wind Turbine using Deep Neural Network,” 38th International Conference on Ocean, Offshore and Arctic Engineering

**ATTENDED PROJECT**

Sponsor: Korea Research Institute of Ships and Ocean Engineering (Daejeon, South Korea)

* Developing of preliminary structural and mooring design concept of 1MW WEPTOS type wave energy converter (Phase I & II) 2017-present
* Development of floater-mooring-turbine coupled dynamic analysis program including wave energy converter effect (Phase I & II) 2013-2015 & 2015-2016

Sponsor: Pohang Iron and Steel Company (Pohang, South Korea)

* Development of floating offshore turbine simulation methodology 2014-2015

Sponsor: American Bureau of Shipping (Houston, United States)

* Feasibility Study of floating offshore wind turbine 2012-2014

Sponsor: U.S. Department of Energy (DC, United States)

* Development of mooring-anchor program for coupling with floater program for FOWT 2012-2013

**SKILLS**

FAST (Aero-hydro-servo-elastic coupled simulation tool), CHARM3D (Hydrodynamic tethering and floater coupled time domain simulation program), OrcaFlex, WAMIT, MATLAB, C++, FORTRAN, Auto Cad, Word, Excel, PPT, ANSYS CFD, MFIX (CFD), Commercial FEM programs such as ABAQUS, ANSYS, MARK, and NASTRAN&PATRAN

**VOLUNTEER PROGRAM**

* All Nation Missions Christian Campus Fellowship chief leader 2013-2017
* KFHI (Korea Food for the Hungry International, NGO) Volunteer Activity for Korean Homeschool 2006-2007&2009-2011
* Publication of the magazine ‘Kemon Achen’ as an editor for Bangladesh KOICA members and Korean Society for two years 2007~2009
* KOICA (Korea Overseas International Cooperate Agency, GO) Volunteer Activity in Bangladesh 2007-2009
* SAM (Spiritual Awakening Mission, NGO) Volunteer Activity for China 2004