Professor T.S. Jang

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Academic History:

Pusan National University, Korea	Department of Naval Architecture	Bachelor of Engineering
Seoul National University, Korea	Naval Architecture and Ocean Engineering	Master of Engineering
Seoul National University, Korea	Naval Architecture and Ocean Engineering	Doctor of Philosophy

R&D Interests and Expertise:

- Water waves and wave mechanics
- Nonlinear ocean system identification
- Techniques to remedy the ill-posedness
- Developing nonlinear numerical schemes for ODE & PDE
- Fluid mechanics, water waves, floating body mechanics, and their combined inverse
  problems

Professional History:

2000.01 – 2001.12	Institute of Industrial Science, University of Tokyo	JSPS Researcher
2002. 01 - 2003. 09	KORDI (Korea Ocean Research and Development Institute)	Senior Researcher
2003. 10 – 2007. 09	Department of Naval Architecture and Ocean Engineering, Pusan National University	Assistant Professor
2007. 10 – 2012. 09	Department of Naval Architecture and Ocean Engineering, Pusan National University	Associate Professor
2011. 12 – present	Arctic Engineering Research Center, The Korea Ship and Offshore Research Institute, Pusan National University	Director
2012. 10 – present	Department of Naval Architecture and Ocean Engineering, Pusan National University	Professor

Activities for Editorship of International Journals:

2006.01 - present	Ships and Offshore Structures	Board member
2007.12 - present	The Open Ocean Engineering Journal	Board Member
2007.08 - present	The Open Hydrology Journal	Board Member
2012.05 - present	Radical Journal of Mathematical Physics	Editor
2012.11 - present	Journal of Civil & Environmental Engineering	Board Member
2013.04 - present	Advanced Shipping and Ocean Engineering	Reviewer Member
2013.06 - present	Scientific Journal of Architecture	Reviewer Member
2013.09 - present	American Journal of Applied Mathematics	Board Member
2014.03 - present	Computer Communication & Collaboration	Reviewer

Activities for Academic Societies and Advisory Committees:

2008 - present	The Lloyd's Register Educational Trust Research Centre of Excellence, Pusan National University	Advisory Committee
2012.01 – 2012.11	Asian Wave and Tidal Energy Conference	Local Committee
2012.04 - present	The Royal Institution Of Naval Architects	Associate Members
2012.10 - 2015	International Ship and Offshore Structures Congress (ISSC)	Member
2012.10 - present	The Korea Ship and Offshore Structures Congress (KSSC), The Society of Naval Architecture of Korea	Chairman
2011.04 - present	Korea Institute of Ocean Science & Technology (KIOST), Korea	Advisory Committee

Publications:

Fayyaz Ahmad, Malik Zaka Ullah, T.S. Jang, Eman S Alaidarous, An efficient method for the static deflection analysis of an infinite beam on a nonlinear elastic foundation of one-way spring model, *Ships and Offshore Structures*, DOI: 10.1080/17445302.2014.956381

T.S. Jang, A new mathematical procedure for simultaneous identification of the nonlinear damping and restoring characteristics based on acceleration measurements, *Ships and Offshore Structures*, DOI:10.1080/17445302.2014.942084

T.S. Jang, An integral equation formalism for solving the nonlinear Klein-Gordon equation, *Applied Mathematics and Computation* 243 (2014), 322–338

H. Baek, J. Park, T.S. Jang, H.G. Sung, J.K. Jeom, Numerical investigation of nonlinear deflections of an infinite beam on nonlinear and discontinuous elastic foundation, *Ships and Offshore Structures*, DOI:10.1080/17445302.2014.919724

T.S. Jang, A general method for analyzing moderately large deflections of a non-uniform beam: an infinite Bernoulli-Euler-von Karman beam on a non-linear elastic foundation, *Acta Mechanica*, 225 (2014), 1967–1984

T.S. Jang, Uniqueness and stability of the simultaneous detection of the nonlinear restoring and excitation of a forced nonlinear oscillation, *Applied Mathematics and Computation* 2014(228) pp. 234-239

Jinsoo Park, Hyeree Bai, T.S. Jang (Corresponding author), A numerical approach to static deflection analysis of an infinite beam on a nonlinear elastic foundation: one-way spring model, *Journal of Applied Mathematics-Iterative Methods and Applications*, 2013(2013), Article ID 136358, DOI:10.1155/2013/136358

T.S. Jang, A method for simultaneous identification of the full nonlinear damping and the phase shift and amplitude of the external harmonic excitation in a forced nonlinear oscillator, *Computers and Structures* 2013 (120-15) pp. 77–85.

T.S. Jang, A New simultaneous identification of the harmonic excitations and nonlinear damping of forced damped nonlinear oscillations: a parametric approach, *Journal of Applied Mathematics* 2013(2013), Article ID 754576, DOI:10.1155/2013/754576

T.S. Jang, A new semi-analytical approach to large deflections of Bernoulli-Euler-v. Karman beams on a linear elastic foundation: nonlinear analysis of infinite beams, *International Journal of Mechanical Sciences*, 2013 (66) pp. 22-32.

T.S. Jang, H.G. Sung, A new semi-analytical method for the non-linear static analysis of an infinite beam on a non-linear elastic foundation: a general approach to a variable beam cross-section, *International Journal of Nonlinear Mechanics* 2012 (47-4) pp.132-139.

S.W. Choi, T.S. Jang, Existence and uniqueness of non-linear deflections of an infinite beam resting on a non-uniform non-linear elastic foundation, *Boundary Value Problems* 2012 (2012) DOI:10.1186/1687-2770-2012-5.

T.S. Jang, H.G. Sung, J.S. Park, A determination of an abrupt motion of the sea bottom by using snapshot data of water waves, *Mathematical Problems in Engineering* 2012 (2012) DOI:10.1155/2012/472575.

T.S. Jang, H.S. Baek, M.C. Kim, B.Y. Moon, A new method for detecting the time-varying nonlinear damping in nonlinear oscillation systems: nonparametric identification, *Mathematical Problems in Engineering* 2011 (2011) DOI:10.1155/2011/749309.

T.S. Jang, A novel method for the non-parametric identification of nonlinear restoring

forces in nonlinear vibrations based on response data: a dissipative nonlinear dynamical system, ***Ships and Offshore Structures*** 2011 (6-4) pp.257-263.

S.K. Lee, T.H. Joung, S.J. Cheon, T.S. Jang, J.H. Lee, Evaluation of the added mass for a spheroid-type unmanned underwater vehicle by vertical planar motion mechanism test, ***International Journal of Naval Architecture and Ocean Engineering*** 2011 (3-3) pp.174-180.

T.S. Jang, H.S. Baek, H.S. Choi, S.G. Lee, A new method for measuring nonharmonic periodic excitation forces in nonlinear damped systems, ***Mechanical Systems and Signal Processing*** 2011 (25-6) pp.2219-2228.

T.S. Jang, Non-parametric simultaneous identification of both the nonlinear damping and restoring characteristics of nonlinear systems whose dampings depend on velocity alone, ***Mechanical Systems and Signal Processing*** 2011 (25-4) pp.1159-1173.

T.S. Jang, H.S. Back, J.K. Paik, A new method for the nonlinear deflection analysis of an infinite beam resting on a non-linear elastic foundation, ***International Journal of Nonlinear Mechanics*** 2011 (46-1) pp.339-346.

T.S. Jang, S.H. Kwon, J.H. Lee, Recovering the functional form of the nonlinear roll damping of ships from a free-roll decay experiment: an inverse formulism, ***Ocean Engineering*** 2010 (37-14,15) pp.1337-1344.

T.S. Jang, H.S. Back, S.L. Han, T. Kinoshita, Indirect measurement of the impulsive load to a nonlinear system from dynamic responses: inverse problem formulation, ***Mechanical Systems and Signal Processing*** 2010 (24-6) pp.1665-1681.

T.S. Jang, S.L. Han, T. Kinoshita, An inverse measurement of the sudden underwater movement of the sea-floor by using the time-history record of the water-wave elevation, ***Wave Motion*** 2010 (47-3) pp.146-155.

T.S. Jang, S.H. Kwon, S.L. Han, A novel method for non-parametric identification of nonlinear restoring forces in nonlinear vibrations from noisy response data: a conservative system, ***Journal of Mechanical Science and Technology*** 2009 (23-11) pp.2938-2947.

T.S. Jang, S.L. Han, Numerical experiments on determination of spatially concentrated time-varying loads on a beam: an iterative regularization method, ***Journal of Mechanical***

Science and Technology 2009 (23-10) pp.2722-2729.

T.S. Jang, H.S. Choi, S.L. Han, A new method for detecting nonlinear damping and restoring forces in nonlinear oscillation systems from transient data, *International Journal of Non-linear Mechanics* 2009(44-7) pp.801-808.

T.S. Jang, S.L. Han, A numerical investigation of the inverse problem of the wavemaker, *Ships and Offshore Structures* 2009 (4-4) pp.315-321.

T.S. Jang, H.G. Sung, S.L. Han, S.H. Kwon, Inverse determination of the loading source of the infinite beam on elastic foundation, *Journal of Mechanical Science and Technology* 2008(22-12) pp.2350-2356.

T.S. Jang, S.L. Han, Application of Tikhonov's regularization to an unstable two dimensional water waves : spectrum with compact support, *Ships and Offshore Structures* 2008(3-1) pp.41-47.

S.H. Kwon, C.H. Kim, T.S. Jang, An identification of wave propagation based on a single-point measurement, *Ocean Engineering* 2007(34-10) pp.1405-1412.

T.S. Jang, S.H. Kwon, B.J. Kim, Solution of an unstable axisymmetric Cauchy-Poisson problem of dispersive water waves for a spectrum with compact support, *Ocean Engineering* 2007 (34-5,6) pp.676-684.

T.S. Jang, S.H. Kwon, T. Kinoshita, B.J. Kim, A nonlinear wave profile correction of the diffraction of a wave by a long breakwater: fixed point approach, *Ocean Engineering* 2007 (34-3,4) pp.500-509.

T.S. Jang, S.H. Kwon, H.S. Choi, Nonlinear wave profiles of wave–wave interaction in a finite water depth by fixed point approach, *Ocean Engineering* 2007 (34-3,4) pp.451-459.

T.S. Jang, A fixed point approach to superposition of two wave trains in deep water: wave profiles with nonlinear amplitude dispersion, *Ships and Offshore Structures* 2006 (1-4) pp.279-287.

T.S. Jang, S.H. Kwon, B.J. Kim, Nonlinear wave interaction of three Stokes' waves in deep water: Banach Fixed Point Method, *Journal of Mechanical Science and Technology* 2006 (20-11) pp.1950-1960.

T.S. Jang, S.H. Kwon, B.J. Kim, On an improvement of a nonlinear iterative scheme for nonlinear wave profile prediction, *Ocean Engineering* 2006 (33-11,12) pp.1552-1564.

T.S. Jang, S.H. Kwon, S.H. Hwang, Application of an iterative method to nonlinear superposition of water wave problems: FFT and mathematical analysis, *Ship and Offshore Structures* 2006 (1-2) pp.83-88.

T.S. Jang, S.H. Kwon, T. Kinoshita, On the realization of nonlinear wave profiles by using Banach fixed theorem: Stokes wave on finite depth, *Journal of Marine Science and Technology* 2005 (10-4) pp.181-187.

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T.S. Jang, T. Kinoshita, H. Yamaguchi, A new functional optimization method applied to pitch distribution of marine propeller, *Journal of Marine Science and Technology* 2001 (6-1) pp.23-30.

T.S. Jang, H.S. Choi, T. Kinoshita, Solution of an unstable inverse problem: wave source evaluation from observation of velocity distribution, *Journal of Marine Science and Technology* 2000 (5-4) pp.181-188.

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T.S. Jang, H.S. Choi, T. Kinoshita, Numerical experiments on an ill-posed inverse problem for a given velocity around a hydrofoil by iterative and noniterative regularizations, *Journal of Marine Science and Technology* 2000 (5-3) pp.107-111.

T.S. Jang, T. Kinoshita, An ill-posed inverse problem of a wing with locally given velocity data and its analysis, *Journal of Marine Science and Technology* 2000 (5-1) pp.16-20.