

# **CURRICULUM VITAE**

## **Jungwoo Lee, Ph.D.**

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### **EDUCATION**

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#### **University of Florida – Gainesville, FL**

Ph.D., Department of Civil and Coastal Engineering

August 2006 – August 2010

- Coastal and Oceanographic Engineering emphasis on coastal modeling
- Advisor: Professor Arnoldo Valle-Levinson
- Dissertation: Modeling of Wind-Driven Interaction at the Estuary/Ocean Transition

#### **Chungnam National University – Daejeon, South Korea**

M.E., Department of Environmental Engineering

March 2003 – February 2005

- Emphasis on numerical modeling
- Advisor: Professor Dongil Seo
- Thesis: Water Quality and SS modeling with EFDC for Pyeongtaek Reservoir

B.E., Department of Environmental Engineering

March 1995 – February 2003

### **PROFESSIONAL WORK EXPERIENCE**

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#### **Texas Water Development Board, Austin, TX, USA**

April 2019 – May 2022

##### Senior Coastal Modeler

- Develop a three-dimensional (3D) ocean circulation model (including a high-resolution unstructured finite element model grid) for the entire Texas coast.
- Develop an automated oil spill prevention program utilizing the General Ocean Model (GOM), which I developed, and SCHISM.

#### **St. Johns River Water Management District, FL, USA**

May 2018 – February 2019

##### Engineer Scientist

- Upgrade the Environmental Fluid Dynamics Code (EFDC) from the static allocation version to the dynamic allocation version.
- Develop a 3D Finite Volume Community Ocean Model (FVCOM) for the St. Johns River estuary.

#### **University of Science and Technology (UST), South Korea**

August 2015 – May 2018

Associate Professor

- Taught graduate course: Practical Numerical Methods
- Mentoring graduate students

**Korea Institute of Civil Engineering and Building Technology (KICT), South Korea**

August 2013 – May 2018

Senior Researcher

- Developed a two-dimensional finite volume model with shock-wave capturing features.
- Developed a three-dimensional unstructured grid, Finite-Difference, Finite-Volume ocean circulation model.
- Performed multi-year projects with colleagues.
- Performed Australian-Korean Foundation project.

**The University of South Alabama, Mobile, AL, USA**

January 2012 – April 2013

Postdoctoral Researcher

- Department of Marine Sciences
- Develop the Finite-Volume Community Ocean Model (FVCOM) for Mobile Bay.
- Performing a comprehensive study of flow structures along the ship channel using ADCP data in Mobile Bay.

**The University of South Alabama, Mobile, AL, USA**

March 2011 – December 2011

Postdoctoral Researcher

- Department of Civil Engineering
- Performed the first observational analysis of tidal flows across the primary inlet of Mobile Bay.
- Studied the tidal and discharge interaction between two nearby openings in Mobile Bay.
- Assisted the deployment of the Naval Research Laboratory Quadraped in the Gulf of Mexico.
- Assisted the ADCP survey in the Gulf of Mexico.
- Assisted the drifter release project in Mobile Bay and the Gulf of Mexico.

**National Research Foundation of Korea, South Korea**

2005 – 2006

Environmental Researcher

- Collected river water samples and performed water quality analysis for the NRF funded project: “Environmental modeling for the construction of Kwea-san dam”.

**TEACHING EXPERIENCE**

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**University of Science and Technology (UST), South Korea**

August 2015 – May 2018

Associate Professor

Practical Numerical Method

- Topic Covered: Theoretical and practical numerical methods using MATLAB and FORTRAN which include “Roots finding methods”, “Linear algebraic equations”, “Curve fitting methods”, “Fourier approximation”, and “Eigenvalue problems”.
- An additional topic covered: Taught “how to improve writing skills” which covers scientific journal writing and thesis writing.
- Overall evaluation score (1 = poor, 5 = excellent):
  - 5.00 (Spring, 2017)
  - 4.79 (Spring, 2016)
- Evaluation comments from students:
  - The instructor gave us good enough assignments, and his feedback on assignments was excellent (excellent line-by-line comments).
  - I have learned a lot of numerical techniques which will be helpful for data analysis.
  - This was my first experience in MATLAB and FORTRAN. However, the instructor encouraged me a lot, and I learned a lot about programming.
  - This class is one of my favorite classes ever.
  - The instructor was enthusiastic and helpful. His preparation of teaching materials and explanation on subjects were excellent.

**University of Florida – Gainesville, FL**

Teaching Assistant

Hydrodynamics (CWR3201)

- Date Taught: Spring semester, 2007
- Course Length: 3 hours per week
- Class Size: 15 undergraduate senior students
- Topic Covered: General characteristics of open-channel flows, Gradually Varied Flow, and Rapidly Varied Flow (including Hydraulic Jump); lab instruction and grading assignments and exams.

**Chungnam National University – South Korea**

Teaching Assistant (2003 – 2005)

Water Quality Management Engineering and Practice

- Topic Covered: River water quality sampling techniques and water quality assessment.

Water Quality Modeling & Practice

- Topic Covered: Understanding numerical modeling techniques including EFDC and QUAL2E.

Water Resources and Water Quality Management

- Topic Covered: Urban water management and reuse technique, hydrology, and Total Maximum Daily Load (TMDL).

**STUDENT SUPERVISION**

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### **Graduate Committee Member**

- Martin Flores, MS Student, Civil Engineering, University of Texas Rio Grande Valle, Jan 2021 – May 2022 (Expected)
  - Thesis: Forecasting Sea Surface Salinity for the Laguna Madre Using Deep Learning
  - Chair: Dr. Jungseok Ho
  - Committee: **Dr. Jungwoo Lee**

### **Graduate Student Mentor**

- Student career advising and mentoring to graduate students at the University of Science and Technology.

## **RESEARCH PROJECTS AND PROPOSAL WRITE-UP**

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### **2021 Texas General Land Office (TGLO):**

- PI: **Jungwoo Lee**
- Co-PIs: Evan Turner, Ram Neupane, Melissa Luper
- Title: Maintenance and Operation of the TWDB Oil Spill Model
- Date: June 2021
- Amount: \$101,200/2-year
- Decision: **Awarded**

### **2021 Coastal Management Program (CMP):**

- PI: **Jungwoo Lee**
- Co-PIs: Dr. Kyeong Park (TAMUG), Joseph Zhang (VIMS)
- Title: Development of an estuary-to-shelf hydrodynamic model for the Texas coast
- Date: June 2021
- Amount: \$829,783/3-year
- Decision: **Not Awarded**

### **2016 Australian Korea Foundation (AFK00571):**

- PI: Dr. Declan Page (CSIRO, Australia)
- Co-PIs: **Jungwoo Lee**
- Title: Integrated drainage and supply through water sensitive design
- Date: August 2016
- Amount: \$40,000/2-year
- Decision: **Awarded**

### **2014 Korea Water Resources Corporation (K-Water):**

- PI: Dr. Dongrul Lee
- Co-PIs: **Jungwoo Lee**, Sungkyu Kang, Sijung Choi

- Title: Intake tower relocation feasibility study research
- Date: 2014
- Amount: \$143,000/year
- Decision: **Awarded**

**2014 Genis Solution Ltd.:**

- PI: **Jungwoo Lee**
- Title: Yedang reservoir restoration project (environmental effect part)
- Date: 2014
- Amount: \$5,500/month
- Decision: **Awarded**

**2013 KICT:**

- PI: **Jungwoo Lee**
- Co-PIs: Dr. Jun Lee (Korea Coastal Ocean Modeling System)
- Title: Development of a 3D river and estuarine circulation model (finite volume, unstructured, Eulerian-Lagrangian Method)
- Date: November 2013
- Amount: \$735,000/5-year
- Decision: **Awarded**

**2013 KICT:**

- PI: Dr. Seong-Ku Kim
- Co-PIs: **Jungwoo Lee**, Sang-Lean Yun
- Title: Development of the algae control wetland system using EcoTank
- Date: 2013
- Amount: \$820,000/5-year
- Decision: **Awarded**

**2013 KICT:**

- PI: Dr. Jisung Kim
- Co-PIs: **Jungwoo Lee**
- Title: Total river management plan
- Date: 2013
- Amount: \$150,000/year
- Decision: **Awarded**

**The University of South Alabama, Mobile, AL:**

- PI: Dr. Kyeong Park

- Postdoctoral Researcher: **Jungwoo Lee**
- Title: Residence time as a factor controlling HABs and fecal coliform bacterial in Little Lagoon, AL.
- Project Duration: February 2010 – January 2013
- Amount: \$295,160 plus \$149,863 matching, Mississippi-Alabama Sea Grant Consortium
- Duty description:
  - The first duty was setting up Finite-Volume Coastal Ocean Model (FVCOM) for Mobile Bay, and comparing FVCOM results to EFDC, which was previously set up by another researcher. The modeling effort includes unstructured grid generation for FVCOM, collecting hydrographic and model-related data, and calibrating the model. For the EFDC model, I have fixed the original grid, which had a discontinuity problem in the salt intrusion. The comparison results showed that FVCOM was better in fitting boundary coastlines and complex geometry, and EFDC was better in water surface elevation prediction.

**The University of South Alabama, Mobile, AL:**

- PI: Dr. Bret M. Webb
- Postdoctoral Researcher: **Jungwoo Lee**
- Title: Identifying transport pathways and quantifying exchange in Alabama's coastal waters: From the Shelf to the Delta
- Project Duration: December 2010 – June 2012
- Amount: \$199,233, BP/Gulf of Mexico Research Initiative
- Duty description:
  - Performing a comprehensive study of flow structures along the ship channel using Acoustic Doppler Current Profiler (ADCP) data in Mobile Bay. It was the first observational analysis of tidal flows across the primary inlet, Main Pass, in Mobile Bay, Alabama. Using the ADCP data we have found the tidal and discharge interaction between two nearby openings in Mobile Bay, Main Pass and Pass-aux-Herons, had not time-independent but time-dependent relation.

**University of Florida, Gainesville, FL:**

- PIs: Dr. Arnoldo Valle-Levinson, Bob Chant, and Ming Li
- Research Assistant: **Jungwoo Lee**
- Title: The impact of Secondary Circulation and mixing of estuarine exchange flows
- Project Duration: September 2008 – August 2012
- Amount: \$375,750, National Science Foundation (NSF)
- Duty description:
  - Assisted in field operations (ADCP, CTD, and CT) in inlets, bays, and lakes in Florida and Louisiana: St. Augustine Inlet, Ponce Inlet, Suwannee River mouth, Tampa Bay, St. Andrew Bay Inlet, Lake Apopka, and Louisiana shelf.

**University of Florida, Gainesville, FL:**

- PIs: Dr. Arnoldo Valle-Levinson
- Research Assistant: **Jungwoo Lee**

- Title: The interaction of estuarine circulation and wind-driven shelf circulation
- Project Duration: June 2005 – June 2008
- Amount: \$80,000, National Science Foundation (NSF)
- Duty description:
  - Performed the Regional Ocean Modeling System (ROMS) setup and simulation. Diverse idealized river/estuarine systems were considered to figure out the bathymetric effect on the freshwater plume dynamics in the coastal region.

**2005 National Research Foundation of Korea (NRF):**

- PI: **Jungwoo Lee** (at Chungnam National University)
- Title: Environmental modeling for the construction of Kwea-san dam
- Date: June 2005 – March 2006
- Amount: \$12,000
- Decision: **Awarded**

**PEER-REVIEWED PUBLICATIONS (\*: corresponding author)**

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1. **Lee, Jungwoo\***, Jun Lee, Sang-Lean Yun, Seog-Ku Kim. Implementation of a high-resolution TVD transport algorithm in GOM, Water, (In Preparation).
2. Lee, Jun, **Lee, Jungwoo\***, Yun, S.-L., Kim, S.-K., 2020. Three-Dimensional Unstructured Grid Finite-Volume Model for Coastal and Estuarine Circulation and Its Application. *Water* 12, 2752.  
<https://doi.org/10.3390/w12102752>
3. **Lee, Jungwoo**, Webb, B.M.\*, Dzwonkowski, B., Valle-Levinson, A., Lee, Jun, 2019. Characteristics of exchange flow in a multiple inlet diurnal estuary: Mobile Bay, Alabama. *Journal of Marine Systems* 191, 38–50. <https://doi.org/10.1016/j.jmarsys.2018.12.004>
4. Lee, J., **Lee, Jungwoo\***, Yun, S.-L., Oh, H.-C., 2017. Development of a finite volume two-dimensional model and its application in a bay with two inlets: Mobile Bay, Alabama. *Continental Shelf Research* 146, 13–27.  
<https://doi.org/10.1016/j.csr.2017.08.002>
5. Lee, I., Hwang, H., **Lee, J.**, Yu, N., Yun, J., Kim, H., 2017. Modeling approach to evaluation of environmental impacts on river water quality: A case study with Galing River, Kuantan, Pahang, Malaysia. *Ecological Modelling, Special Issue of China-Korea Joint Seminars on multi-disciplinary and multi-method approaches toward sustainable human and nature interactions* 353, 167–173.  
<https://doi.org/10.1016/j.ecolmodel.2017.01.021>
6. Kim, J., **Lee, J.\***, 2016. Analysis of the Spatial Distribution of Total Phosphorus in Wetland Soils Using Geostatistics. *Journal of Korean Society of Environmental Engineers* 38, 551–557.  
<https://doi.org/10.4491/KSEE.2016.38.10.551>
7. **Lee, J. \***, Bae, S., Lee, D.-R., Seo, D., 2014. Transportation Modeling of Conservative Pollutant in a River with Weirs - The Nakdong River Case. *Journal of Korean Society of Environmental Engineers* 36, 821–827.  
<https://doi.org/2014.36.12.821>

8. **Lee, J.\***, Yun, S., Oh, H., n.d. Wind and bathymetry effects on the fresh water plume structures. Journal of Korean Society of Environmental Engineers 36, 698. <https://doi.org/2014.36.10.698>
9. **Lee, Jungwoo\***, Yun, S., Oh, H., Kim, S., Lee, Jun, 2014. Local Winds Effects on the Water Surface Variation at the Shallow Estuary, Mobile Bay. Journal of Korean Society of Environmental Engineers 36, 570. <https://doi.org/2014.36.8.570>
10. Dzwonkowski, B., Park, K., **Lee, J.**, Webb, B.M., Valle-Levinson, A., 2014. Spatial variability of flow over a river-influenced inner shelf in coastal Alabama during spring. Continental Shelf Research 74, 25–34. <https://doi.org/10.1016/j.csr.2013.12.005>
11. **Lee, Jungwoo\***, Lee, Jun, 2013. A comparison of three dimensional river/estuary/ocean models. Magazine of Korea Water Resources Association: Water for Future 46, 73–82.
12. Kim, S.-K., Ahn, J.-H., Yun, S.-L., Kang, S.-W., **Lee, J.**, Lee, J.-K., Lim, J.-H., Kim, D.-S., Lee, T., 2013. Removal of Sediments below Breeding Ground using Ultrasonics and Micro-Air Flotation. Journal of Korean Society of Environmental Engineers 35, 737. <https://doi.org/2013.35.10.737>
13. Kim, S.-K., Ahn, J.-W., Kang, S.-W., Yun, S.-L., **Lee, J.**, Lee, J.-K., Lim, J.-H., Kim, D.-S., Lee, T., 2013. Estimation of Contamination Level of Sediments at the Below of Busan Gwan-an Bridge. Journal of Korean Society of Environmental Engineers 35, 809. <https://doi.org/2013.35.11.809>
14. **Lee, J.**, Webb, B.M.\*, Dzwonkowski, B., Park, K., Valle-Levinson, A., 2013. Bathymetric influences on tidal currents at the entrance to a highly stratified, shallow estuary. Continental Shelf Research 58, 1–11. <https://doi.org/10.1016/j.csr.2013.03.002>
15. **Lee, J.\***, Valle-Levinson, A., 2013. Bathymetric effects on estuarine plume dynamics. Journal of Geophysical Research: Oceans 118, 1969–1981. <https://doi.org/10.1002/jgrc.20119>
16. **Lee, J.\***, Valle-Levinson, A., 2012. Influence of bathymetry on hydrography and circulation at the region between an estuary mouth and the adjacent continental shelf. Continental Shelf Research 41, 77–91. <https://doi.org/10.1016/j.csr.2012.04.006>

## PRESENTATIONS AT PROFESSIONAL MEETINGS

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1. **Lee, Jungwoo**, “*Development of a 3D Model for Texas Coast*,” NOAA SCHISM Workshop and Boot Camp 2021, February 17, 2021.
2. **Lee, Jungwoo**, Jun Lee, “*Development of a 2D riverine/estuarine circulation model and its application*,” Annual Meeting of the Korean Society of Environmental Engineers, Jeju, Korea, November 15-17, 2017.
3. Lee, Jun, **Jungwoo Lee**, “*Development of a 3D Unstructured Grid Numerical Model and Its Application*,” Korean Society of Civil Engineers 2016 Convention, Jeju, Korea, October 19-21, 2016.
4. **Lee, Jungwoo**, “*River restoration and numerical model development in Korea*,” Europe-Korea Conference on Science and Technology, July 27-30, Berlin, Germany.
5. **Lee, Jungwoo**, “*Water Cycle and River Restoration Projects in Korea*,” International Conference on Sustainable Design, Engineering and Construction 2016 (ISCDEC 2016), Tempe, Arizona, USA, May 18-20, 2016.



6. **Lee, Jungwoo**, Jun Lee, “*Development of 2-dimensional riverine/estuarine circulation model using the finite volume method*,” 2015 International Environmental Engineering Conference and Annual Meeting of the Korean Society of Environmental Engineers, Busan, Korea, October 28-30, 2015.
7. **Lee, Jungwoo**, Sang-Lean Yun, “*Modeling of the Water Surface Variation Driven by Local Winds at a Shallow Estuary*,” 2014 AGU (American Geophysical Union) Fall Meeting, San Francisco, CA, December 15-19, 2014.
8. **Lee, Jungwoo**, Jun Lee, Sang-Lean Yun, “*Numerical Solution of the Two-Dimensional Shallow Water Equations by the Finite Volume Method and its Application*,” 2014 AGU (American Geophysical Union) Fall Meeting, San Francisco, CA, December 15-19, 2014.
9. B. Dzwonkowski, K. Park, **Jungwoo Lee**, B. Webb, and A. Valle-Levinson, “*Spring seasonal velocity structure on a river-influenced inner shelf: where is the coastal current?*”, Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA, Feb 17-22, 2013.
10. **Lee, Jungwoo**, Bret M. Webb, “*Tidal current characteristics with the diurnal tidal system in a shallow estuary*”, 21<sup>st</sup> Biennial Conference of the Coastal and Estuarine Research Federation (CERF), Daytona Beach, Florida, November 6 – 10, 2011.
11. **Lee, Jungwoo**, A. Valle-Levinson, “*Influence of bathymetry on the buoyant outflow plume dynamics at an estuary/ocean transition*”, The fourth annual South-East Coastal Oceanography and Meteorology (SECOM) conference, Tallahassee, Florida, May 27, 2010.
12. **Lee, Jungwoo**, A. Valle-Levinson, P. Cheng, J. Austin, J. Pringle, “*Influence of bathymetry on buoyant plume dynamics at an estuary/ocean transition*”, The Ocean Science Meeting, Portland, Oregon, February 22 – 26, 2010.
13. **Lee, Jungwoo**, A. Valle-Levinson, P. Cheng, J. Austin, J. Pringle, “*Bathymetry and wind effects on the density-driven flows at an estuary/ocean Transition*”, The Gordon Research Conferences on Coastal Circulation, Colby-Sawyer College, New London, New Hampshire, June 7 – 12, 2009.
14. **Lee, Jungwoo**, A. Valle-Levinson, “*Influence of bathymetry on the dynamics of wind-driven estuary/ocean exchange*”, The Interdisciplinary Conference, Graduate Student Council, University of Florida, Gainesville, Florida, February 12, 2009.
15. **Lee, Jungwoo**, A. Valle-Levinson, P. Cheng, J. Austin, J. Pringle, “*Modeling of wind-driven interactions at the estuary/ocean transition*”, The Ocean Science Meeting, Orlando, Florida, March 2 – 7, 2008.
16. **Lee, Jungwoo**, D. Seo, “*Sediment Transport and Water Quality Modeling of Pyeongtaek Reservoir, Korea due to dredging using 3-D Hydrodynamic Model EFDC and WASP 7.0*”, The 25<sup>th</sup> International Symposium of North American Lake Management Society (NALMS), Madison, Wisconsin, November 9 – 11, 2005
17. **Lee, Jungwoo**, D. Seo, “*Prediction of sediment transport characteristics using 3-D Hydrodynamic Model, EFDC*”, The IWA International Conference on Particle Separation International Water Association (IWA) Conference on Particle Separation, Seoul, Korea, June 2005.
18. **Lee, Jungwoo**, D. Seo, “*Application of 3-D Hydrodynamic Model, EFDC-Hydor for WASP7.0*”, The annual Conference of Korea Society of Environmental Engineers, Suwon, Korea, April 2005.
19. Seo, D., **Jungwoo Lee**, “*Prediction of Sediment Transport Characteristics Due to Dredging Works Using*

*3D Hydrodynamic Model, EFDC*", The Korea Water and Wastewater Association Conference, Kumi, Korea, April 2005.

20. Seo, D., E. H. Lee, **Jungwoo Lee**, E. Kang, "*Application of Water Quality Models to Lakes, Present and Future*", The 24<sup>th</sup> International Symposium of North American Lake Management Society, Victoria, British Columbia, Canada, November 3 – 5, 2004.
21. **Lee, Jungwoo**, J. Choi, H. Hwang, D. Seo, "*New Generation Automatic Lake Water Quality Monitoring System*", The 24<sup>th</sup> International Symposium of North American Lake Management Society, Victoria, British Columbia, Canada, November 3 – 5, 2004.
22. Hwang, H, D. Seo, M. Song, **Jungwoo Lee**, E. Kang, "*Development of Spreadsheet Program to Design a Bubble Plume Aerator*", The 23<sup>rd</sup> International Symposium of North American Lake Management Society, Mashantucket, Connecticut, November 4 – 8, 2003.

## PROFESSIONAL SERVICES

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### Service to Professional Societies and Communities:

- Convener, Special Session-7: New approach to urban development, 2017 Water Korea Conference, March 23-24, 2017, Gwangju, Korea.
- Chair/Convener, Session BE2: National land use plans & Eco-city, Europe-Korea Conference on Science and Technology, July 27-30, 2016, Berlin, Germany.

### Peer-Reviewer:

- Continental Shelf Research (2016 – Present)
  - Recognized Reviewer, Elsevier, 2016.
- Gulf and Caribbean Research (2016 – Present)
- Korean Society of Environment Impact Assessment (2014 – Present)
- Journal of Korean Society of Environmental Engineer (2014 – Present)
- The Korean Society for Marine Environment & Energy (2013 – Present)
- The Korean Environmental Sciences Society (2009 – Present)

## NON-PROFESSIONAL SERVICES

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- President of the Korean Student Association in Civil & Coastal Eng., UF (01/07 – 12/08).
- Secretary of the Alumni Association of Environmental Eng., CNU (08/05 – 07/06).
- President of the Class of 95's Association, Environmental Eng., CNU (01/04 – 07/06).
- President of the Graduate School of 2003 Association, CNU (03/03 – 02/04).
- President of Tae-Kwon-Do Club, CNU (07/98 – 02/99).
- Tae-Kwon-Do Instructor, Army, S. Korea (05/96 – 04/98)

## HONORS AND AWARDS

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- Recognized Reviewer, Elsevier, 2016.

- Research Assistantship and Teaching Assistantship, University of Florida, Department of Civil and Coastal Engineering (Jan. 2007 – May 2010).
- Young Professional Scholarship, Korea Research Foundation, (June 2005 – May 2006).
- Research Assistantship, Chungnam National University, Department of Environmental Engineering (May 2003 – Feb. 2005).
- Off-Campus Supporting Scholarship, Chungnam Educational Foundation, (Spring & Fall 2004).
- Chungnam National University Research and Scholarship, Chungnam National University Research and Scholarship Foundation, (Spring & Fall 2004).
- Student Scholarship, Chungnam National University, (Fall 1995, Fall 1999, Spring 2000, Fall 2001, Fall 2003, Spring 2004).

### **SKILLS (Rating Scale: 1-Poor/5-Excellent)**

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#### **Computer Skills:**

- MS Windows & MS Office: 5
- LINUX/UNIX: 5

#### **Programming Languages:**

- FORTRAN: 5
- MATLAB: 5
- OCTAVE: 5
- PYTHON: 4
- OpenMP: 4
- MPI: 3
- C: 2

#### **Visualization Tools:**

- Tecplot: 5
- Gnuplot: 4
- ParaView: 4
- ArcView GIS: 3

#### **Numerical Models:**

- Three-dimensional General Ocean Model (GOM): 5 (**self-developed**)
- Two-dimensional River and Estuarine Circulation Model (REM2D): 5 (**self-developed**)
- Environmental Fluid Dynamics Codes (EFDC): 5
- Regional Ocean Modeling System (ROMS): 3
- Finite Volume Community Ocean Model (FVCOM): 3
- Advanced Circulation Model (ADCIRC): 2
- Semi-implicit Cross-scale Hydroscience Integrated System Model (SCHISM): 4

- Water Quality Analysis Simulation Program (WASP): 4
- Enhanced Stream Water Quality Model (QUAL2E): 3
- Surface Modeling System (SMS): 5

**Language:**

- Korean: 5 (native speaker)
- English: 4

**LICENSES AND CERTIFICATES**

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- The Fundamentals of Engineering (FE) license for the environmental and water quality, Korea.

## REFERENCE CONTACT INFORMATION

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- **Dr. Arnoldo Valle-Levinson (Academic Advisor)**  
Professor,  
University of Florida  
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- **Dr. Jonghoon Kim (Colleague)**  
Assistant Professor,  
University of North Florida  
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- **Dr. Jun Lee (Colleague, Co-developer of the General Ocean Model (GOM))**  
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