

Anzy Lee

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RESEARCH INTERESTS

- Computational Fluid Dynamics: River Hydraulics, Two-phase Flow, Coupled Groundwater and Surface-Water Flow Model, Hyporheic Exchange
- Conservative/Reactive Solute Transport through Porous Media
- Machine Learning: Neural Networks, Metaheuristic Optimization Algorithm

EDUCATION

Purdue University

Aug 2016 - May 2020 (expected)

Ph.D in Civil Engineering

Dissertation: Riverbed Morphology, Hydrodynamics and Hyporheic Exchange Processes

Advisor: Prof. Antoine Aubeneau

Seoul National University, Republic of Korea

Mar 2014 - Feb 2016

MS in Civil and Environmental Engineering

Thesis: Determination of Near-global Optimal Initial Weights of Artificial Neural Network Using Harmony Search Algorithm: Application to Breakwater Armor Stones

Advisor: Prof. Kyung-Duck Suh

Handong Global University, Republic of Korea

Mar 2010 - Feb 2014

BS in Spatial Environment System Engineering

RESEARCH EXPERIENCE

Research Assistant

Aug 2016 - Jul 2019

Prof. Antoine Aubeneau

Lyles School of Civil Engineering, Purdue University

- Conducted numerical modeling of hyporheic exchange processes in fractal riverbed

Visiting Scholar

Feb 2019 - Apr 2019

Prof. Xiaofeng Liu

Civil and Environmental Engineering, Penn State University

- Developed boulder-driven hyporheic exchange model

Visiting Scholar

Jan 2018 - Jan 2019

Prof. M. Bayani Cardenas

Jackson School of Geosciences, The University of Texas at Austin

- Investigated hyporheic exchange in channels with high Froude Number flows: the importance of free surface water elevation changes

Research Assistant

2014 - 2015

Prof. Kyung-Duck Suh

Coastal Engineering Laboratory, Seoul National University

- Developed a robust hybrid Artificial Neural Network (ANN) model integrated with the Harmony search algorithm to estimate the stability number of armor unit of rubble mound structure

COMPUTER SKILLS

Operating Systems: Windows, Linux

Programming: C/C++, MATLAB, Python, MPI, Visual Basic

Scientific Applications: \LaTeX , OpenFOAM, FEniCS, ParaView, GIS, HEC-RAS, HEC-HMS

Technical Drawing: yEd, Adobe Illustrator, AutoCAD, Microsoft Visio

JOURNAL ARTICLES

A. Lee, A. Aubeneau, M. B. Cardenas, X. Liu, Investigation of hyporheic exchange in channels with high Froude Number flows (in preparation)

A. Lee, A. Aubeneau, M. B. Cardenas, 3D Numerical Modeling of Hyporheic Exchange Processes in Fractal Riverbed (in preparation)

S. W. Kim, **A. Lee**, J. Mun (2018) A Surrogate Modeling for Storm Surge Prediction Using an Artificial Neural Network. J. of Coastal Res. 84, 866-870.

A. Lee, J. W. Geem, K. D. Suh (2016) Determination of near-global optimal initial weights of artificial neural network using harmony search algorithm: Application to breakwater armor stones. Appl. Sci. 6(6), 164.

A. Lee, S. E. Kim, K. D. Suh (2016) An easy way to use artificial neural network model for calculating stability number of rock armor. Ocean Eng. 127, 349-356.

CONFERENCE PROCEEDINGS

A. Lee, M. B. Cardenas, A. Aubeneau (2018) Investigation of hyporheic exchange in channels with high Froude Number flows: the importance of free surface water elevation changes, AGU 2018 Fall Meeting, Dec 2018, Washington, D.C., United States

A. Aubeneau, **A. Lee** (2018) Aris method for (reactive) transient storage models, AGU 2018 Fall Meeting, Dec 2018, Washington, D.C., United States

A. Lee, A. Aubeneau (2017) 3D Numerical Modeling of Hyporheic Exchange Processes in Fractal Riverbed, AGU 2017 Fall Meeting, Dec 2017, New Orleans, United States

TEACHING AND MENTORING

Lab Instructor and Grader

Fall 2019

Elementary Hydraulics Laboratory

Instructor: Prof. D. A. Lyn, Purdue University

- Prepared the experimental procedures, set up the experimental apparatus, introduced the experiment, responded to student questions during the experiment, and graded student reports

AWARDS, SERVICE AND EXTRACURRICULAR EXPERIENCE

Dorothy Faye Dunn Fellowship, Purdue University 2019

Climate Science Summer School, NASA JPL Center for Climate Sciences 2018

Delleur Award, Purdue University 2017, 2018

Summer Institute on Earth-Surface Dynamics, National Center for Earth-surface Dynamics 2017

Peer Reviewer, The journal Engineering Optimization 2015

REFERENCES

Prof. Antoine Aubeneau

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Lyles School of Civil engineering, Purdue University

Prof. Xiaofeng Liu

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Civil and Environmental Engineering, Penn State University

Prof. M. Bayani Cardenas

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Jackson School of Geosciences, The University of Texas at Austin