

Anzy Lee

Lyles School of Civil Engineering, Purdue University ♦ West Lafayette, IN 47906
lee2513@purdue.edu ♦ <https://anzylee.github.io>

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

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

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| Lab Instructor and Grader | Fall 2019 |
| Elementary Hydraulics Laboratory | <i>Instructor: Prof. D. A. Lyn, Purdue University</i> |
| · 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

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| 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 , <i>The Journal Engineering Optimization</i> | 2015 |

COMPUTER SKILLS

- Operating Systems:** Windows, Linux
- Programming:** C/C++, MATLAB, Python, MPI, Visual Basic
- Scientific Applications:** L^AT_EX, OpenFOAM, FEniCS, ParaView, GIS, HEC-RAS, HEC-HMS
- Technical Drawing:** yEd, Adobe Illustrator, AutoCAD, Microsoft Visio

REFERENCES

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|---------------------------------|---|
| Prof. Antoine Aubeneau | aubeneau@purdue.edu
Lyles School of Civil engineering, Purdue University |
| Prof. Xiaofeng Liu | xzl123@psu.edu
Civil and Environmental Engineering, Penn State University |
| Prof. M. Bayani Cardenas | cardenas@jsg.utexas.edu
Jackson School of Geosciences, The University of Texas at Austin |