Anzy Lee

Postdoctoral Research Scientist ◇ Utah State University
anzylee7@gmail.com ◇ https://anzylee.github.io

RESEARCH INTERESTS

- **River flow and habitat modeling:** 1D/2D/3D flow models, open-channel hydraulics, habitat suitability assessment, fish passage analysis
- **Geomorphology:** Synthetic channel generation, geomorphic variability analysis, fractal scaling
- **Machine Learning:** Neural networks, metaheuristic optimization algorithm

COMPUTER SKILLS

- **Operating Systems:** Windows, Linux (Shell)
- **Programming:** C/C++, MATLAB, Python, Visual Basic, LaTeX
- **Scientific Applications:** HEC-RAS, HEC-HMS, TUFLOW, OpenFOAM, ArcGIS, FEniCS
- **Technical Drawing:** Adobe Illustrator, AutoCAD, Microsoft Visio

EDUCATION

Purdue University *Aug 2016 - May 2020*
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

EMPLOYMENT

Postdoctoral Scholar Aug 2020 - Current
Co-advised by Prof. Belize Lane and Prof. Gregory Pasternack *Utah State University*
- Developed sets of alternative site designs to systematically test how different geomorphic variables impact hydraulic and ecological system responses for various types of channels

Research Assistant Aug 2016 - Jul 2020
Prof. Antoine Aubeneau *Lyles School of Civil Engineering, Purdue University*
- Investigated the drivers of hyporheic exchange to promote exchange processes by maneuvering geomorphological and hydrodynamic conditions

SPONSORED RESEARCH

- Application of methods and models to support the development and implementation of policies for water quality control for cannabis cultivation, ***California State Water Resources Board, Division of Water Rights*** **[$3,000,000]**
- Novel Geospatial Architecture of Channel and Floodplain Morphological Attributes within the OWP Hydrofabrics, ***National Oceanic and Atmospheric Association*** **[$1,500,000]**

PEER REVIEWED PUBLICATIONS

A. Lee, B. A. Lane, G. B. Pasternack. (2023) Identifying key channel variability functions controlling ecohydraulic conditions using synthetic channel archetypes. *Ecohydrology*, e2533. doi:10.1002/eco.2533

A. Lee, A. Aubeneau, M. B. Cardenas, X. Liu. (2022) Hyporheic exchange due to cobbles on sandy beds. *Water Resour. Res.* 58, e2021WR030164. doi:10.1029/2021WR030164

A. Lee, A. Aubeneau, M. B. Cardenas, X. Liu (2021) Hyporheic Exchange in Sand Dunes Under a Freely Deforming River Water Surface. *Water Resour. Res.* 57, e2020WR028817. doi:10.1029/2020WR028817

A. Lee, A. Aubeneau, M. B. Cardenas (2020) The Sensitivity of Hyporheic Exchange to Fractal Properties of Riverbeds. *Water Resour. Res.* 56, e2019WR026560. doi:10.1029/2019WR026560

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. doi:10.2112/SI85-174.1

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. doi:10.3390/app6060164

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. doi:10.1016/j.oceaneng.2016.10.013

SERVICE

Peer Reviewer, *Water Resources Research* 2020 - 2022
Peer Reviewer, *Journal of Hydrology* 2022
Peer Reviewer, *Journal of Hydraulic Engineering* 2022

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

REFERENCES

Prof. Gregory Pasternack gpast@ucdavis.edu
Department of Land, Air, and Water Resources, University of California, Davis

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