

Anzy Lee

Research Scientist

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MISSION STATEMENT: A professional with a passion for environmental hydrodynamics, fluvial geomorphology, surface & groundwater interactions, sediment transport, aquatic ecosystem, and watershed hydrology. My mission is to understand watershed dynamics and interactions to enhance ecosystem function and resilience.

EDUCATION

Ph.D in Civil Engineering <i>Purdue University</i>	2016 - 2020
MS in Civil and Environmental Engineering <i>Seoul National University, Republic of Korea</i>	2014 - 2016
BS in Construction, Urban and Environmental Engineering <i>Handong Global University, Republic of Korea</i>	2010 - 2014

WORK EXPERIENCE

Research Scientist <i>Utah State University, UC Davis</i>	2020 - Current
Research/Teaching Assistant <i>Purdue University</i>	2016 - 2020

RESEARCH PROJECTS

National Oceanic and Atmospheric Association [\$1,500,000] <i>Novel Geospatial Architecture of Channel and Floodplain Morphological Attributes within the OWP Hydrofabrics</i>	2023 - Current
California State Water Resources Board [\$3,000,000] <i>Application of methods and models to support the development and implementation of policies for water quality control for cannabis cultivation</i>	2020 - Current
Purdue Research Foundation	2016 - 2020

SELECTED PEER-REVIEWED JOURNAL ARTICLES

- Lee, A.,** Castejon, J., Patterson, N., Diehl, R., Phillips, C. B., and Lane, B. (*In Preparation*) Probabilistic quantification of within-reach hydraulic geometry variability.
- Castejon, J., **Lee, A.,** Patterson, N. K., Lane, B., and Phillips, C. B. (*Submitted*) Leveraging High-resolution Topography to Advance Parsimonious Reach-scale Flood Inundation Mapping.
- Lee, A.,** Lane, B., and Pasternack, G. B. (*Submitted*) RiverSTICH: A modular synthetic 3D channel terrain generator from sparse transect data.
- Lee, A.,** Lane, B., and Pasternack, G. B. (2025). Spectral Slope and Coherence Quantitatively Summarize Nested Topographic Variability Patterns in Rivers. *River Res. Applic.*, 41: 1093-1103.
[doi:10.1002/rra.4437](https://doi.org/10.1002/rra.4437)
- Lee, A.,** Lane, B., and Pasternack, G. B. (2023). Identifying key channel variability functions controlling ecohydraulic conditions using synthetic channel archetypes. *Ecohydrology*, e2533.
[doi:10.1002/eco.2533](https://doi.org/10.1002/eco.2533)

- Lee, A.**, Cardenas, M. B., Aubeneau, A., and Liu, X. (2022). Hyporheic exchange due to cobbles on sandy beds. *Water Resour. Res.* 58, e2021WR030164. [doi:10.1029/2021WR030164](https://doi.org/10.1029/2021WR030164)
- Lee, A.**, Cardenas, M. B., Aubeneau, A., and Liu, X. (2021). Hyporheic Exchange in Sand Dunes Under a Freely Deforming River Water Surface. *Water Resour. Res.* 57, e2020WR028817. [doi:10.1029/2020WR028817](https://doi.org/10.1029/2020WR028817)
- Lee, A.**, Cardenas, M. B., and Aubeneau, A. (2020). The Sensitivity of Hyporheic Exchange to Fractal Properties of Riverbeds. *Water Resour. Res.* 56, e2019WR026560. [doi:10.1029/2019WR026560](https://doi.org/10.1029/2019WR026560)
- Lee, A.**, Geem, J. W., and Suh, K. D. (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](https://doi.org/10.3390/app6060164)
- Lee, A.**, Kim, S. E., and Suh, K. D. (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](https://doi.org/10.1016/j.oceaneng.2016.10.013)

AWARD & SERVICE

Peer Reviewer	2019 - Current
<i>River Res. Applic., Earth Surf. Process. Landf., Water Resour. Res., J. Hydrol., J. Hydraul. Eng.</i>	
Dorothy Faye Dunn Fellowship , Purdue University	2019
Delleur Award , Purdue University	2017, 2018
Merit Scholarship (Top 5%) , Handong University	2012

SELECTED CONFERENCE PROCEEDINGS

- Stieve, J., Lane, B., and **Lee, A.** (*Submitted to ISE 2026*). Generating Syntetic Terrain Models from Sparse Historic Datasets for Ecohydraulic Assessment.
- Lee, A.**, Castejon, J., Patterson, N., Diehl, R., Phillips, C. B., and Lane, B. (*Accepted to AGU 2025. Oral Presentation*). Probabilistic quantification of within-reach hydraulic geometry.
- Castejon Villalobos, J., **Lee, A.**, Lane, B., and Phillips, C. B. (2024). Accurate River Channel Representation Within a HAND-y Method for Flood Inundation Mapping. *AGU 2024 Fall Meeting*. Dec 2024, Washington D.C., United States.
- Lee, A.**, Lane, B., Pasternack, G. B., and Sandoval-Solis, S. (2021). Identifying key geomorphic parameters characterizing eco-hydraulic responses of river channels using RiverBuilder. *AGU 2021 Fall Meeting*. Dec 2021, New Orleans, United States.
- Lee, A.** and Aubeneau, A. (2017). 3D Numerical Modeling of Hyporheic Exchange Processes in Fractal Riverbed. *AGU 2017 Fall Meeting*. Dec 2017, New Orleans, United States.

DIGITAL PRODUCTS

- Lee, A.** and Lane, B. (2024). HAND-FIM Assessment Tools [Python]. GitHub. [Link](#).
- Lee, A.** (2024). Width Extraction Tools [Python]. GitHub. [Link](#).
- Lee, A.** (2024). Habitat Analysis Tools [Python]. GitHub. [Link](#).
- Lee, A.** (2024). Spectral Analysis Tools for Geomorphic Variability Functions [MATLAB]. GitHub. [Link](#).
- Lee, A.** (2020). hyporheicScalarInterFoam [C++, OpenFOAM]. HydroShare. [Link](#).

TEACHING & MENTORING

Research Mentoring , Utah State University	2020 - Current
<i>Undergraduate-</i> Maddie Witte, <i>Graduate-</i> Steve White, Jared Stieve	
Lab Instructor for Elementary Fluid Mechanics , Purdue University	2019