

# Anzy Lee

## Research Scientist

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I am a river scientist specializing in environmental hydrodynamics, fluvial geomorphology, and watershed hydrology, with strong expertise in hydrologic and hydraulic modeling, geospatial analysis, and statistical analysis. My mission is to understand watershed dynamics and interactions to enhance ecosystem function and resilience.

## EDUCATION

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

## WORK EXPERIENCE

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

## RESEARCH PROJECTS

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

## SELECTED PEER-REVIEWED JOURNAL ARTICLES

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- 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

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

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