

# Dogil Lee

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## EDUCATION

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- Ph.D., University of Florida (Agricultural and Biological Engineering) Expected 2025 August  
*Dissertation: The Impacts of Changes in Agricultural Practices and Climate on a Hydrologic System: The Case of the Santa Fe River Basin, Florida, United States.*
- M.S., Seoul National University (Rural Systems Engineering) 2018  
*Thesis: Integrating the Mechanisms of Agricultural Reservoir and Paddy Cultivation to the HSPF-CREAMS-PADDY system*
- B.S., Seoul National University (Rural Systems Engineering) 2016

## EMPLOYMENT

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- Graduate Research Assistant 2019 – Present  
*University of Florida, Department of Agricultural and Biological Engineering*
- Researcher 2018 – 2019  
*Research Institute of Agriculture and Life Science at Seoul National University*
- Graduate Research Assistant 2016 – 2017  
*Seoul National University, Department of Rural Systems Engineering*

## PUBLICATIONS

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*In preparation/In review*

13. de Rooij, R., Reaver, N., **Lee, D.**, Graham, W. and D. Kaplan, Combining SWAT-MODFLOW with MODPATH to simulate nitrate transport in springsheds. (In preparation)
12. Reaver, N., de Rooij, R., **Lee, D.**, Kaplan, D. and Graham, W. Robust Calibration of Large Hydrological Models Using Bayesian Inference. (In preparation)
11. Kaplan, D., Bartels, W.L., Borisova, T., Carton de Grammont, P., Court, C., Ferreira, J., He, F., Hochmuth, R. Koirala, U., **Lee, D.**, Reaver, N., de Rooij, R., Rowles, K., Schlatter, K. and Graham, W. Farms, Forests, and Flows: Stakeholder-driven modeling of the economic and environmental sustainability of the Floridan aquifer. (In preparation)
10. Graham, W., Athearn, K., Bartels, W.L., Borisova, T., Carton de Grammont, P., Court, C., He, F., Hochmuth, R., Koirala, U., **Lee, D.**, Love, J., Reaver, N., de Rooij, R., Rowles, K., Smith, A., Schlatter, K. and Kaplan, D. Stakeholder-Informed Environmental-Economic Tradeoffs at the Farm and Forest Scale. (Internal Review, Submittal imminent)
9. **Lee, D.**, de Rooij, R., Reaver, N., Graham, W. and Kaplan, D. Assessing Hydrologic Responses to Land Use and Climate Changes in the Santa Fe River Basin, Florida, the United States. (Internal Review, Submittal imminent)

*Published*

8. He, F., **Lee, D.**, Borisova, T., Graham, W., Athearn, K., Dukes, M., Merrick, J. and Hochmuth, R., 2024. Farm-scale economic and environmental tradeoffs of land use and land management decisions. *Agricultural Water Management*, 301, 108925.  
<https://doi.org/10.1016/j.agwat.2024.108925>.
7. **Lee, D.**, Merrick, J., Rath, S., Dukes, M., Kaplan, D., and Graham, W., 2024. Groundwater impacts of adding carrot to corn-peanut rotations in North Florida. *Agricultural Water Management*, 294, 108713.  
<https://doi.org/10.1016/j.agwat.2024.108713>.
6. **Lee, D.** and Hwang, S., 2023. A Sensitivity of Simulated Runoff Characteristics on the Different Spatial Resolutions of Precipitation Data. *Journal of the Korean Society of Agricultural Engineers*, 65(6), 37-49.  
<https://doi.org/10.5389/KSAE.2023.65.6.037>.
5. Kim, K., Song, J.H., **Lee, D.G.**, Hwang, H. and Kang, M.S., 2019. Pollutants Classification based on Trend Analysis and Assessment of Water Pollutants Achievement in Subbasins of Han River Basin. *Journal of the Korean Society of Agricultural Engineers*, 61(3), 67-76.
4. Lee, H., Kim, K., Song, J.H., **Lee, D.G.**, Rhee, H. and Kang, M.S., 2019. Pollutant Delivery Ratio of Okdong-cheon Watershed Using HSPF Model. *Journal of the Korean Society of Agricultural Engineers*, 61(1), 9-20.  
<https://doi.org/10.5389/KSAE.2019.61.1.009>.
3. **Lee, D.G.**, Song, J.H., Lee, J., Choi, S.K. and Kang, M.S., 2018. Integrating the Mechanisms of Agricultural Reservoir and Paddy Cultivation to the HSPF-MASA-CREAMS-PADDY System. : *Journal of the Korean Society of Agricultural Engineers*, 60(6), 1-12.  
<https://doi.org/10.5389/KSAE.2018.60.6.001>.
2. Shin, S., Kang, M.S., Jun, S.M., Song, J.H., Kim, K., Ryu, J.H., Park, J., **Lee, D.G.** and Lee, K.D., 2016. Estimating Ungauged River Section for Flood Stage Analysis. *Journal of The Korean Society of Agricultural Engineers*, 58(5), 11-18.  
<https://doi.org/10.5389/KSAE.2016.58.5.011>.
1. **Lee, D.G.**, M.S. Kang, J. Park and J.H. Ryu, 2016. Uncertainty analysis of future design floods for the Yongdang reservoir watershed using bootstrap technique. *Journal of the Korean Society of Agricultural Engineers*, 58(2), 91-99.

## PRESENTATIONS

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14. **Lee, D.**, de Rooij, R., Reaver, N., Kaplan, D. and Graham, W., 2024. Impacts of Land Use/Land Management Change and Climate Change on Water Availability and Water Quality in the Santa Fe River Basin Using SWAT-MODFLOW. American Geophysical Union 2024 annual meeting.
13. **Lee, D.**, de Rooij, R., Reaver, N., Kaplan, D. and Graham, W., 2024. Analyzing impacts of climate change on water availability in the Santa Fe River Basin, FL. Society of Wetland Scientists South Atlantic Chapter 2024 Conference.

12. **Lee, D.**, de Rooij, R., Reaver, N., Kaplan, D. and Graham, W., 2024. Analyzing the Impacts of Climate Change and Land Use Change on Water Availability in the Suwannee River Basin, FL. The 9th University of Florida Water Institute Symposium.
11. **Lee, D.**, Reaver, N., Rath, S., de Rooij, R., Kaplan, D. and Graham, W., 2022. Modeling the impacts of agricultural practices on nitrate loads, streamflow and crop yields in the Santa Fe River Basin. 2022 UCOWR/NIWR Annual Water Resources Conference.
10. **Lee, D.**, Rath, S., Reaver, N., de Rooij, R., Kaplan, D. and Graham, W., 2022. Modeling the impacts of agricultural practices on nitrate loads, streamflow and crop yields in the Santa Fe River Basin. The 8th University of Florida Water Institute Symposium.
9. **Lee, D.**, Reaver, N., Rath, S., de Rooij, R., Kaplan, D. and Graham, W., 2021. Impacts of agricultural management practices on groundwater quality and quantity in the Santa Fe River Basin, Florida. American Geophysical Union 2021 fall meeting.
8. **Lee, D.**, Rath, S., Graham, W., 2020. Impacts of pasture, hay and row crop management systems on groundwater quality and quantity in the Santa Fe River Basin, Florida. The 7th University of Florida Water Institute Symposium.
7. **Lee, D.G.**, Kang, M.S., Kim, K., Ryu, J.H., Lee, H., Lee, J. and Lee, J., 2018. Analysis of Characteristics and Yield of Paddy Rice by Applying Water Management Techniques. 2018 Annual Conference of the Korean Society of Agricultural Engineers.
6. **Lee, D.G.**, Kang, M.S., Song, J., Ryu, J.H. and Lee, J., 2018. Development of Integrated System Considering the Mechanisms of Agricultural Reservoir and Paddy Cultivation. 2018 Annual Conference of the Korean Society of Agricultural Engineers.
5. **Lee, D.G.**, Kang, M.S. Kim, K., Jun, S.M., Ryu, J.H. and Lee, H., 2017. Impact of reduction of non-point source pollution depending on application of best management practices on stream. 2017 Annual Conference of the Korean Society of Agricultural Engineers.
4. **Lee, D.G.**, Kang, M.S., Song, J.H. and Kim, K., 2017. Calibration performance of TANK model according to data intervals. 2017 ASABE Annual International Meeting.
3. **Lee, D.G.**, Kang, M.S., Song, J.H. and Kim, K., 2017. Performance evaluation for parameter optimization of TANK model according to runoff observations with different intervals. 2017 Convention of the Korean Water Resources Association.
2. **Lee, D.G.**, Kang, M.S., Kim, K. and Jun, S.M., 2016. Evaluation and analysis of impaired water bodies in South Han River watershed. 2016 Annual Conference of the Korean Society of Agricultural Engineers.
1. **Lee, D.G.**, Kang, M.S., Park, J. and Ryu, J.H., 2016. Development of data processing factor module for flood management in rural basin. 2016 Convention of the Korean Water Resources Association.

## RESEARCH OUTPUTS

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3. Reaver, N., **Lee, D.**, de Rooij, R., Kaplan, D. and Graham, W., 2025. The Floridan Aquifer Collaborative Engagement for Sustainability (FACETS) project SWAT-MODFLOW model of the Santa Fe River, Florida. HydroShare.  
<https://doi.org/10.4211/hs.19e8b36afa614684bbb33bce426983d7>.
2. Reaver, N., **Lee, D.**, de Rooij, R., Kaplan, D. and Graham, W., 2025. Model instances for land use scenarios of the Floridan Aquifer Collaborative Engagement for Sustainability (FACETS) project. HydroShare.  
<http://www.hydroshare.org/resource/723aea6cc07747b7b6a77441e6e88d54>.
1. **Lee, D.**, Merrick, J., Rath, S., Dukes, M., Kaplan, D., Graham, W. and Reaver, N., 2024. SWAT model instances for "Groundwater impacts of adding carrot to corn-peanut rotations in North Florida". Hydroshare.  
<https://doi.org/10.4211/hs.e992c4484f864ef8bccdc2924ed6e9ba>.

## RESEARCH EXPERIENCE

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- **Graduate Research Assistant** 2019 – Present  
*Department of Agricultural and Biological Engineering at the University of Florida, Gainesville, FL*
  - The Floridan Aquifer Collaborative Engagement for Sustainability  
(Role: Biophysical modeling using SWAT-MODFLOW considering different land use scenarios from participatory modeling process)
  - Ecological and Economic Impacts of Land Use and Climate Change on Coastal Food Webs and Fisheries  
(Role: Establishing climate and land use change scenarios for SWAT-MODFLOW; not enrolled as a project participant)
- **Researcher** 2018 – 2019  
*Research Institute of Agriculture and Life Science at Seoul National University, Seoul, Republic of Korea*
  - Application of eco-friendly water-saving techniques on paddy fields  
(Role: Field work, facilitating and analyzing water budget and yield)
- **Graduate Research Assistant** 2016 – 2017  
*Department of Rural Systems Engineering at Seoul National University, Seoul, Republic of Korea*
  - A study on the establishment of management standards of the total maximum daily loads for the four major river basins (II)  
(Role: Modeling stream flows and water quality of Han River using HSPF considering comprehensive point sources and non-point sources)
  - Establishment of measures to improve the water quality of the Ipjang reservoir  
(Role: Field work including measuring flow rate and water sampling, results analysis)

- Intelligent flood risk analysis on a component basis for agricultural watersheds  
(Role: Quantifying uncertainty in hydrologic/hydraulic modeling)
  - A study on the establishment of management standards of the total maximum daily loads for the four major river basins (I)  
(Role: Modeling stream flows and water quality of Han River using HSPF considering comprehensive point sources and non-point sources)
  - Eco-friendly utilization and management of Hwasung Lake, Tando Lake, and the nearby reclaimed land  
(Role: Field work, survey, analyzing measured water quality data)
- **Undergraduate Research Assistant** 2014 – 2015  
*Rural Water Resource Systems Engineering Lab, Seoul National University, Seoul, Republic of Korea*
    - Development of improved farming methods for agricultural non-point source pollution reduction  
(Role: Field work, analyzing water quality data)

## TEACHING EXPERIENCE

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- Teaching Assistant; Agricultural Operations & Systems (undergraduate course) Fall 2018  
*Department of Agricultural and Biological Engineering, University of Florida*
- Teaching Assistant; Environmental Fluid Dynamics (undergraduate course) Fall 2016  
*Department of Rural Systems Engineering, Seoul National University*
- Teaching Assistant; Hydrology and Lab (undergraduate course) Spring 2016  
*Department of Rural Systems Engineering, Seoul National University*

## HONORS AND AWARDS

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- Water Institute Travel Award –Annual AGU Meeting (\$1,000) 2024  
*University of Florida*
- Departmental academic scholarship – Annual Top-up funding for 2024 (\$2,000) 2023-2024  
*University of Florida*
- Departmental academic scholarship – Annual Top-up funding for 2023 (\$1,500) 2022-2023  
*University of Florida*
- 27th Outstanding Scientific Paper Award 2017  
*Korean Federation of Science and Technology Societies for the paper: "Uncertainty analysis of future design floods for the Yongdang reservoir watershed using bootstrap technique" as first author*
- Agricultural Engineering Foundation Scholarship (total \$15,000) 2016–2017  
*Seoul National University*
- Agricultural Engineering Foundation Scholarship (total \$15,000) 2013–2015  
*Seoul National University*

## **SOFTWARE SKILLS**

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- Extensive experience in hydrological and hydraulic modeling with expertise in SWAT, HSPF, MT3D, RT3D, MODFLOW, MODPATH and HEC-HMS
- Experience in handling climate projections (raw GCMs and bias-correction)
- Skilled in programming languages software such as R, MATLAB and FORTRAN
- Skilled in data analysis software such as SAS and SPSS
- Familiarity with GIS software and tools including QGIS, ArcGIS and AutoCAD
- Proficient in high-performance computing