Siddharth Saksena, B.Tech., M.S., Ph.D.

The Charles E. Via Jr. Department of Civil and Environmental Engineering, Virginia Tech

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Education

Purdue University
Doctor of Philosophy (Ph.D.) in Civil Engineering	2019
Master of Science (M.S.) in Civil Engineering	2014

Indian Institute of Technology Roorkee (IIT), India
Bachelor of Technology (B.Tech.) in Civil Engineering	2012

Work Experience

Virginia Tech
Assistant Professor, Civil and Environmental Engineering	2022 – present
Research Assistant Professor, Civil and Environmental Engineering	2019 – 2021

Purdue University
Graduate Research Assistant, Civil Engineering	2013 – 2019

Czech Technical University
Research Intern, Prague, Czech Republic	2011

Awards And Honors

A. Ivan Johnson Award for Young Professionals, American Water Resources Association	2022
Universities Council on Water Resources (UCOWR) PhD Dissertation Award, Runner-up	2020
Nellie Munson Teaching Assistant Award, Purdue University	2018
Dorothy Faye Dunn Fellowship, Purdue University	2018
Marc and Carol Gill Endowment Fellowship in Civil Engineering, Purdue University	2018
Outstanding Reviewer Contribution, Journal of Hydrology	2018
Best Graduate Student Paper Award, American Society of Civil Engineering (ASCE) World Environmental and Water Resources Congress	2017
Pathfinder Fellowship, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI)	2017
Jacques W. Delleur Award in Hydraulics and Hydrology, Purdue University	2017
Lyles Teaching Fellowship, Purdue University	2017
Best Graduate Student Paper Award, ASCE World Environmental and Water Resources Congress	2015

Professional Skills

HEC-RAS 1D/2D; Interconnected Channel & Pond Routing (ICPR) 1D/2D; XP-SWMM; PC-SWMM; SWAT; HEC-HMS; ArcGIS Pro; QGIS; HY-8; MATLAB; SAS; Python; and GMS

Externally Funded Grants

Total Amount: $2,721,878**;** **Saksena Share:** $1,291,353 *(shown below)*

Virginia Tech

PI, "Landuse Impact Modeling and Assessment for the Occoquan Watershed"
2024 – 2025
Northern Virginia Regional Commission
$176,000

PI, "Southern Rivers Updates for Delivery Ratios and Nutrient Targets"
2023 – 2024
Virginia Department of Environmental Quality
$79,999

Co-PI, "Proto-OKN Theme 1: The Water-Energy Nexus Open Knowledge Network (WEN-OKN)"
2023 – 2026
$165,000
National Science Foundation (#2333726) with PI Lilit Yeghiazarian

PI, "Occoquan Model Development and Support for Fiscal Year 2024"
2023 – 2024
Northern Virginia Regional Commission
$119,000

Co-PI, "An integrated framework to quantify and improve the climate change resiliency of combined sewer overflow systems in the Northeast Ohio Regional Sewer District"
2022 – 2025
$139,812
Ohio Sea Grant Commission with PI Lilit Yeghiazarian

Co-PI, "Identification of cost-effective green stormwater infrastructure to mitigate flooding in Houston's vulnerable communities and improve Galveston Bay fisheries"
2022 – 2025
$43,000
Texas A&M University/DOC-NOAA with PI Jessica Eisma

Co-PI, "Occoquan Model Development and Support for Fiscal Year 2023" through Occoquan Monitoring Lab
2022 – 2023
$86,892
Northern Virginia Regional Commission with PI Stanley Grant

Co-PI, "Identification of cost-effective, climate-informed green infrastructure adaptations to reduce flood risk in Houston's vulnerable communities"
2021 – 2024
$43,000
NOAA Climate Program Office, Adaptation Science Program with PI Jessica Eisma

VT PI & Senior Person, "NSF Convergence Accelerator Pilot Phase II: The Urban Flooding Open Knowledge Network (UF-OKN) Delivering Flood Information to AnyOne, AnyTime, AnyWhere"
2020 – 2024
$398,650
National Science Foundation (# 2033607) with PI Lilit Yeghiazarian

VT PI & Senior Person, "Convergence Accelerator Phase I (RAISE) The Urban Flooding Open Knowledge Network"
2019 – 2020
$40,000
National Science Foundation (#1937099) with PI Lilit Yeghiazarian

Professional Service

Journal Editorship

Associate Editor, Journal of American Water Resources Association (JAWRA)
2022 – present

Special Issue Editor, "Water Risk Under a Rapidly Changing World",
Journal of American Water Resources Association (JAWRA) Featured Collection
2022 – 2024

Committee Service

Technical Director, Conference Planning Committee   2023 – present
2024 AWRA, UCOWR & NIWR 60th Anniversary Annual Conference. St. Louis, MO

Technical Advisory Group, Minnehaha Creek Watershed District   2023 – present
Pilot Model Development, MN

Conference General Co-Chair, Conference Planning Committee   2022 – 2024
AWRA 2024 Geospatial Water Technology Conference, Data to Decisions:
Managing and Modeling Water Challenges, Orlando, FL

Faculty Representative, Virginia Tech   2022 – present
Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUAHSI)

Technical Program Co-Chair, Conference Planning Committee   2022 – 2024
AWRA 2024 Spring Specialty Conference, Water Risk and Resilience: Research
and Sustainable Solutions, Tuscaloosa, AL

Member, EWR Graduate Admissions Committee, CEE, Virginia Tech   2022 – present

Chair, American Water Resources Association's (AWRA) Technology Committee   2021 – present

Technical Advisory Committee, Texas Integrated Flooding Framework,   2021 – present
Texas Water Development Board (TWDB)

Member, American Water Resources Association's (AWRA) Future Risk Committee   2021 – present

Technical Program Co-Chair, Conference Planning Committee   2021 – 2022
AWRA 2022 Spring Specialty Conference: Water Risk Under a Rapidly Changing World,
Tuscaloosa, AL

Member, Conference Planning Committee   2021 – 2022
AWRA 2022 Geospatial Water Technology Conference, Austin, TX

Student Activities Chair, Conference Planning Committee   2019 – 2020
AWRA 2020 Virtual Geospatial Water Technology Conference

Conference Session Convener, National

Session Chair, "Innovations in Operational Flood Forecasting, Real-Time Response,   2022
and Risk Mitigation", American Geophysical Union (AGU) Fall Meeting 2022

Session Co-Chair, "Data-Driven Approaches for Flood Observation, Model Validation,   2022
and Uncertainty Quantification", American Geophysical Union (AGU) Fall Meeting 2022

Session Chair, "Urban Flooding Open Knowledge Network: Delivering Flood Information   2021
to Anyone, Anytime, Anywhere", 2021 AWRA Virtual Annual Water Resources Conference

Session Chair, "An Automated Framework for Flood Modeling and Forecasting using   2021
Geospatial Descriptors and the Interconnected Channel and Pond Routing (ICPR) Model",
2021 AWRA Virtual Annual Water Resources Conference

Session Chair, "Advances in Integrated and Coupled Systems Modeling for Improved   2020
Urban Flood Risk and Impact Assessment", American Geophysical Union (AGU) Fall Meeting 2020

Peer Review (100 reviews)

National Science Foundation Proposal Panel Reviewer	2024
Nature – Scientific Reports (1); Water Resources Research (1); Frontiers in Water (1); Journal of American Water Resources Association (1)	2023
Journal of Hydrology (2); Climate Dynamics (2); International Journal of Hydrology Science and Technology (3); Hydrologic Sciences Journal (1); Water Resources Research (1); Journal of Flood Risk Management (3); Frontiers in Water (1)	2022
Water Resources Research (2); Journal of Hydrology (4); Water (2); Journal of American Water Resources Association (1); Sustainability (1); ISPRS International Journal of Geoinformation (5); Canadian Water Resources Journal (2); Hydrological Processes (1); Sensors (2); Journal of Flood Risk Management (1)	2021
Nature – Scientific Data (2); Hydrological Processes (1); Water (17); Environmental Monitoring and Assessment (1); Natural Hazards and Earth System Sciences (1) Journal of Hydrology (7); Geomatics, Natural Hazards and Risk (1); Geosciences (1); Sustainability (2); Climate (1); Forests (1); Journal of American Water Resources Association (1); Frontiers in Earth Science (1); Journal of Flood Risk Management (1)	2020
Journal of American Water Resources Association (2); Canadian Journal of Civil Engineering (2); Mathematical Problems in Engineering (1); Natural Hazards and Earth System Sciences (2); Journal of Hydrology (6); Journal of Hydraulic Research (1); Current World Environment (1); Geomatics, Natural Hazards and Risk (1)	2019
Journal of Hydrology (7); Journal of Hydraulic Research (1); Geomatics, Natural Hazards and Risk (1)	2018
Journal of Hydrology (1)	2017

Professional Affiliations

Member, American Water Resources Association (AWRA)	2018 – present
Member, American Geophysical Union (AGU)	2016 – present
Associate Member, American Society of Civil Engineers (ASCE)	2015 – present
Member, Environmental and Water Resources Institute (EWRI)	2015 – present

Teaching Experience

S: Spring, F: Fall *(values in brackets represent recent student evaluation of faculty effectiveness)*

Virginia Tech

Instructor, CEE 4984 GIS and Hydrologic Design	S 2024
Instructor, CEE 3314 Water Resources Engineering (5.64/6.00)	S 2023, F 2023
Instructor, CEE 4304/5334 Hydrology/Quantitative Hydrology (5.54/6.00)	F 2022, F 2023, F 2024
Instructor, CEE 5244 Advanced GIS in Hydrologic Analysis (5.86/6.00)	S 2021, F 2021, S 2022, S 2024

Purdue University

Lyles Teaching Assistant, CE 340 Hydraulics (*Best Teaching Assistant Award*)	F 2017

Advising Experience

Postdoctoral Advising

Dr. Lalit Pal (Virginia Tech CEE)   2022 – present

Chair, Advisory Committee, PhD

Rezvane Ghorbani (Virginia Tech CEE Ph.D.)   2023 – present

Soumya Guchhait (Virginia Tech CEE Ph.D.)   2023 – present

Vishwa Shah (Virginia Tech CEE Ph.D.)   2022 – present

Chair, Advisory Committee, Masters

Landen Furr (Virginia Tech CEE M.S.)   2024 – present

Zoe Travers (Virginia Tech CEE M.S.)   2023 – 2024

Erin Lee (Virginia Tech CEE M.S.)   2023 – 2024

Julia Post (Virginia Tech CEE M.S)   2023 – present

Momtaz Jahan (Virginia Tech CEE M.S.)   2022 – present

Member, Advisory Committee, PhD

Hossien Ahmadi (Virginia Tech BSE Ph.D., Advisor: David Sample)   2024 – present

Samuel Daramola (Virginia Tech CEE Ph.D., Advisor: David Munoz)   2023 – present

Md Abu Bakar Siddik (Virginia Tech CEE Ph.D., Advisor: Landon Marston)   2023 – present

Afiya Narzis (University of Texas Arlington CEE Ph.D., Advisor: Jessica Eisma)   2023 – present

Charlie Wendell Grinton, Jr. (Virginia Tech CEE Ph.D., Advisor: Freddy Paige)   2022 – 2024

Megan Harris (Virginia Tech CEE Ph.D., Advisor: John Little)   2022 – present

Mahsa Samadi Darafshani (University of Texas Arlington CEE Ph.D., Advisor: Jessica Eisma)   2022 – present

Jessica Seersma (University of Texas Arlington CEE Ph.D., Advisor: Jessica Eisma)   2020 – present

Paul Chilton (Virginia Tech Geosciences Ph. D., Advisor: Robert Weiss)   2020 – 2023

Conrad Brendel (Virginia Tech CEE Ph.D., Advisor: Randel Dymond)   2019 – 2020

Member, Advisory Committee, Masters

Sophia Gingrich (Virginia Tech CEE M.S., Advisor: Megan Rippy)   2024 – present

Julia Hallworth (Virginia Tech CEE M.S., Advisor: Landon Marston)   2023 – 2024

Sarah Adams (Virginia Tech CEE M.S., Advisor: Jennifer Irish)   2022 – present

Melissa Stacy (Virginia Tech CEE M.S., Advisor: Stanley Grant)   2022 – 2023

Alex Miller (Virginia Tech CEE M.S., Advisor: Landon Marston)   2022 – 2023

Jaclyn McCarthy (Virginia Tech CEE M.S., Advisor: Landon Marston)   2021 – 2022

Karsten Zuidema (Virginia Tech CEE M.S., Advisor: Landon Marston)   2021 – 2022

Ahmed S. Ahmed (Virginia Tech CEE M.S., Advisor: Tripp Shealy)   2020 – 2021

Alireza Moghaddasi (Virginia Tech BSE, M.Eg., Advisor: Robert Grisso)   2019 – 2020

Student Assistant Advising

Landen Furr (Undergraduate Teaching Assistant, Virginia Tech CEE)   2023

Evie Wensell (Undergraduate Teaching Assistant, Virginia Tech CEE)   2023

Mahabub Chowdhury (Graduate Research Assistant, Virginia Tech CEE)   2022 – 2023

Publications And Presentations

Journal Articles (*indicates student/postdoc mentored)

1. Lyn, D., Dey, S., **Saksena, S.,** & Merwade, V. (2024). Culvert vs Bridge Hydraulics for Larger-span (or short) Culverts. *Journal of Hydraulic Engineering*, 150 (2), https://doi.org/10.1061/JHEND8.HYENG-13650.

2. Pal, L.*, **Saksena, S.,** Dey, S., Merwade, V., & Ojha, C. (2023). An Integrative Framework for Assessment of Urban Flood Response to Changing Climate. *Water Resources Research*, 59 (8), https://doi.org/10.1029/2023WR034466.

3. Kohanpur, A., **Saksena, S.,** Dey, S., Johnson, J.M., Riasi, S., Yeghiazarian, L., & Tartakovsky, A. (2023) Urban Flood Modeling: Uncertainty Quantification and Physics-Informed Gaussian Processes Regression Forecasting. *Water Resources Research*, 59 (3), https://doi.org/10.1029/2022WR033939.

4. Dey, S., **Saksena, S.,** Winter, D., Merwade, V., and McMillan, S. (2022) Incorporating Network Scale River Bathymetry to Improve Characterization of Fluvial Processes in Flood Modeling. *Water Resources Research*, 58 (11), https://doi.org/10.1029/2020WR029521.

5. Johnson, J.M, Narock, T., Singh, J., Fils, D., Clarke, K.C., **Saksena, S.,** Shepard, A., Arumugam, S., and Yeghiazarian, L. (2022) Knowledge Graphs to Support Real-time Flood Impact Evaluation. *AI Magazine*, 43, pp. 40-45, https://doi.org/10.1002/aaai.12035.

6. **Saksena, S.,** Merwade, V., and Singhofen, P.J. (2021) An Alternative Approach for Improving Prediction of Integrated Hydrologic-Hydraulic Models by Assessing the Impact of Intrinsic Spatial Scales. *Water Resources Research*, 57 (10), https://doi.org/10.1029/2020WR027702.

7. Eisma, J., **Saksena, S.,** and Merwade, V. (2021) Assessing the Impact of Land Cover, Soil, and Climate on the Storage Potential of Dryland Sand Dams. *Frontiers in Water*, 3, https://doi.org/10.3389/frwa.2021.671455.

8. **Saksena, S.,** Dey, S., Merwade, V., and Singhofen, P.J. (2020) A Computationally Efficient and Physically Based Approach for Urban Flood Modeling Using a Flexible Spatiotemporal Structure. *Water Resources Research*, 56, https://doi.org/10.1029/2019WR025769.

9. **Saksena, S.,** Merwade, V., and Singhofen, P.J. (2019) Flood Inundation Modeling and Mapping by Integrating Surface and Subsurface Hydrology with River Hydrodynamics. *Journal of Hydrology*, 575, pp. 1155-1177, https://doi.org/10.1016/j.jhydrol.2019.06.024.

10. Dey, S., **Saksena, S.,** and Merwade, V. (2019) Assessing the Effect of Different Bathymetric Models on Hydraulic Simulation of Rivers in Data Sparse Regions. *Journal of Hydrology,* 575, pp. 838-851. https://doi.org/10.1016/j.jhydrol.2019.05.085.

11. Frisbee, M.D., Meyers, Z.P., Miller, J.B., Box, C.L., Stewart-Maddox, N.S., Larson, E.B., Granger, D.E., **Saksena, S.,** Dey, S., and Frisbee, E. (2019) Processes Leading to the Reactivation of a Sinkhole in Buried Karst and the Subsequent Drying of Waterfalls in a Small Catchment Located in Northern Indiana, USA. *Journal of Cave and Karst Studies*, 81 (2), pp. 69-83. http://dx.doi.org/10.4311/2017ES0116.

12. Jafarzadegan, K., Merwade, V., and **Saksena, S.** (2018) A Geomorphic Approach to 100-Year Floodplain Mapping for the Conterminous United States. *Journal of Hydrology*, 561, pp. 43-58, https://doi.org/10.1016/j.jhydrol.2018.03.061.

13. **Saksena, S.,** and Merwade, V. (2017) Deterministic Approach to Identify Ordinary High-Water Marks using Hydrologic and Hydraulic Attributes. *Journal of Irrigation and Drainage Engineering*, 143 (5), 04016084. https://doi.org/10.1061/(ASCE)IR.1943-4774.0001148.

14. **Saksena, S.,** and Merwade, V. (2015) Incorporating the Effect of DEM Resolution and Accuracy for Improved Flood Inundation Mapping. *Journal of Hydrology*, 530, pp. 180-194, https://doi.org/10.1016/j.jhydrol.2015.09.069.

Journal Articles (Interdisciplinary Collaboration with Veterinary Medicine)

15. Paranjape, V.V., Knych, H., Berghaus, L., Cathcart, J., Giancola, S., Craig, H., James, C., **Saksena, S.**, and Reed, R. (2024) Evaluation of physical variables, thermal nociceptive threshold testing and pharmacokinetics during placement of transdermal buprenorphine matrix-type patch in healthy adult horses. *Frontiers in Pain Research,* 5, https://doi.org/10.3389/fpain.2024.1373555.

16. Paranjape, V.V., Henao-Guerrero, N., Menciotti, G., and **Saksena, S.** (2023) Performance of Four Cardiac Output Monitoring Techniques vs. Intermittent Pulmonary Artery Thermodilution during a Modified Passive Leg Raise Maneuver in Isoflurane-Anesthetized Dogs. *Frontiers in Veterinary Science,* 10, https://doi.org/10.3389/fvets.2023.1238549.

17. Paranjape, V.V., Garcia-Pereira, F., Menciotti, G., **Saksena, S.,** Henao-Guerrero, N., and Ricco Pereira, C.H. (2023) Agreement of cardiac output measurements by esophageal Doppler and transesophageal echocardiography with intermittent pulmonary artery thermodiluation during pharmacologic manipulation of hemodynamics in anesthetized dogs. *American Journal of Veterinary Research*, 84 (8), https://doi.org/10.2460/ajvr.23.05.0101.

18. Paranjape, V.V., Garcia-Pereira, F., Menciotti, G., **Saksena, S.,** Henao-Guerrero, N., and Ricco Pereira, C.H. (2023) Evaluation of Electrical Cardiometry for Measuring Cardiac Output and Derived Hemodynamic Variables in Comparison with Lithium Dilution in Anesthetized Dogs. *Animals*, 13 (14), 2362, https://doi.org/10.3390/ani13142362.

19. Paranjape, V.V., Henao-Guerrero, N., Menciotti, G., **Saksena, S.,** and Agostinho, M. (2023) Agreement between Electrical Cardiometry and Pulmonary Artery Thermodilution for Measuring Cardiac Output in Isoflurane-Anesthetized Dogs. *Animals*, 13 (8), 1420, https://doi.org/10.3390/ani13081420.

20. Paranjape, V.V., Henao-Guerrero, N., Menciotti, G., and **Saksena, S.** (2023) Esophageal Doppler-derived indices and arterial load variables provide useful hemodynamic information during assessment of fluid responsiveness in anesthetized dogs undergoing acute changes in blood volume. *American Journal of Veterinary Research*, 84 (3), https://doi.org/10.2460/ajvr.22.11.0198.

21. Paranjape, V.V., Henao-Guerrero, N., Menciotti, G., and **Saksena, S.** (2023) Volumetric evaluation of fluid responsiveness using a modified passive leg raise maneuver during experimental induction and correction of hypovolemia in anesthetized dogs. *Veterinary Anaesthesia and Analgesia*, 50 (3), https://doi.org/10.1016/j.vaa.2023.02.009.

22. Paranjape, V.V., Shih, A., Garcia-Pereira, F., and **Saksena, S.** (2022) Transpulmonary ultrasound dilution is an acceptable technique for cardiac output measurement in anesthetized pigs. *American Journal of Veterinary Research*, 83 (6), PMID: 35524964, https://doi.org/10.2460/ajvr.21.11.0189.

Manuscripts in Preparation and Review (*indicates student/postdoc mentored)

1. Lyn, D., **Saksena, S.,** Dey, S., and Merwade, V. (n.d.) Stone motion and riprap apron stability at model circular culvert outlets *(under review)*.

2. Darafshani, M.S.*, Narzis, A.*, **Saksena, S.**, and Eisma, J.A (n.d.) Watershed-Scale Green Stormwater Infrastructure Design and Assessment in a High-Intensity Rainfall Region *(under review)*.

3. Daramola, S.*, Muñoz, P., Irish, J., **Saksena, S.,** and Muñoz, D.F. (n.d.) Characterizing the Evolution of Extreme Water Levels with Long Short-Term Memory Station-based Approximated Models and Transfer Learning Techniques *(under review).*
4. Chilton, W.P.*, **Saksena, S.,** Irish, J., and Weiss, R. (n.d.) Data Driven Analysis of Anthropogenic Land Use Change and its Effects on Flooding in River Basins of Varying Topography (*under review*).
5. Grant, S., Bhide, S.V., McGuire, K., Prestegaard, K., Kaushal, S.S., Sekellick, A., Webber, J., Jastram, J., Rippy, M.A., Schenk, T., Curtis, S., Gomez-Velez, J., Hotchkiss, E.R., Vikesland, P., and **Saksena., S.** (n.d.) Stream Water Age Reveals Hydrological and Human Drivers of Inland Freshwater Salinization (*under review*).
6. **Saksena, S.,** Pal, L.*, Dey, S., Merwade, V., and Singhofen, P.J. (n.d.) Using Hybrid Modeling Techniques for Hyper Resolution Integrated Flood Modeling of Urban Environments (*in preparation*).
7. **Saksena, S.,** Pal, L.*, Salvi, N.A., Dey, S., Merwade, V., Zeng, L., and Ramaswami, A. (n.d.) Flood Modeling of Urban Environments using an Integrated Hydro-systems Approach (*in preparation*).
8. Dey, S., **Saksena, S.,** and Merwade, V. (n.d.) An Efficient Framework for Improving Geospatial Description of Large-scale River Networks (*in preparation*).

Conference Papers

1. **Saksena, S.,** and Merwade, V. (2017) Integrated Modeling of Surface-Subsurface Processes to Understand River- Floodplain Hydrodynamics in the Upper Wabash River Basin. *World Environmental and Water Resources Congress 2017*, pp. 60–68.
2. **Saksena, S.** (2015) Investigating the Role of DEM Resolution and Accuracy on Flood Inundation Mapping. *World Environmental and Water Resources Congress 2015*, pp. 2236-2243.

Book Chapter

1. **Saksena, S.,** and Merwade, V. (2022) Application of Physically Based Distributed Flood Models for Large-Scale Flood Simulations. *In Flood Handbook, 1st Edition, Taylor & Francis Group*, https://doi.org/10.1201/9780429463938.

Technical Reports and Magazine Articles

1. **Saksena, S.**, Espinoza, G., and Merwade, V. (2024) AWRA 2024 Geospatial Water Technology Conference - Data to Decisions: Managing and Modeling Water Challenges. *American Water Resources Association IMPACT Magazine, 26 (1).*
2. **Saksena, S.** (2020) Flood Prediction in a Changing World: Time to Break Traditions. *American Water Resources Association IMPACT Magazine, 22 (2).*
3. Johnson, J.M., **Saksena, S.,** Yeghiazarian, L., Merwade, V., Arumugam, S., Back, S., Bales, J., Cai, X., Fils, D., Hahmann, T., Horsburgh, J.S., Huang, Z., Huang, R., Mazrooei, A., Onda, K., Ranjithan, R., Riasi, M. S., Rice, S., Shafiee-Jood, M., Shepherd, A., Singhofen, P., Stephan, S., Tarboton, D., and Tartakovsky, A. (2020) Moving from Information to Insight by Linking Urban and Hydrologic Systems through the Urban Flooding Open Knowledge Network. *American Water Resources Association IMPACT Magazine, 22 (2).*
4. Lyn, D., **Saksena, S.,** Dey, S., and Merwade, V. (2019) A Laboratory Study for Apron-Riprap Design for Small Culverts. *Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2019/16, Purdue University, West Lafayette, IN.*

5. Lyn, D., Dey, S., **Saksena, S.,** and Merwade, V. (2018) Assessment of HY-8 and HEC-RAS Bridge Models for Large-span Water-encapsulating Structures. *Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2018/14, Purdue University, West Lafayette, IN.*

6. **Saksena, S.,** and Merwade, V. (2015) Relating Design Storm Events to Ordinary High-Water Marks in Indiana. *Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2015/19, Purdue University, West Lafayette, IN.*

Conference Presentations (*indicates presenting author)

1. Yeghiazarian, L.*, Zaslavsky, I., Welch, E., **Saksena, S.,** and Zhan, J. (2024) The Water-Energy Nexus Open Knowledge Network (WEN-OKN). *WaterSciCon 2024, St. Paul, MN.*

2. **Saksena, S.***, and Yeghiazarian, L. (2024) The Urban Flooding Open Knowledge Network: Current tools and functionalities. *AWRA 2024 Spring Conference, Tuscaloosa, AL.*

3. **Saksena, S.***, and Yeghiazarian, L. (2024) The Urban Flooding Open Knowledge Network: Overview of current tools and functionalities. AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.

4. Chowdhury, M.A. G, Pal, L.*, Shah, V., and **Saksena, S.** (2024) Integrated Impact Assessment of Land Use and Climate Change on the Water Quantity and Water Quality of the Occoquan Watershed in Northern Virginia. *AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.*

5. Shah, V.*, Pal, L., Rippy, M., Goulet, N., Grant, S., and **Saksena, S.** (2024) Assessing Integrated Hydrologic and Water Quality Models for Predicting WQQ in an Urban Watershed Amidst Climate Change and Land Use Dynamics: A Case Study of the Occoquan Watershed, Northern Virginia. *AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.*

6. Dey, S.*, Riasi, S., **Saksena, S.,** and Yeghiazarian, L. (2024) A comprehensive evaluation of infrastructural level flooding estimated by Urban Flooding Open Knowledge Network. *AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.*

7. Ghorbani, R.*, Pal, L., Yeghiazarian, L., and **Saksena, S.** (2024) Assessing the Climate Resiliency of Stormwater Systems Using an Integrated Modeling Approach. *AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.*

8. Chilton, W.P.*, **Saksena, S.,** Pal, L., and Weiss, R. (2024) Composite   Hydrologic and Hydraulic Modelling of Tidally Influenced Riverine Flooding Events using ICPR4 Framework. *AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.*

9. Chilton, W.P.*, **Saksena, S.,** Irish, J., and Weiss, R. (2024) Data Driven Analysis of Anthropogenic Land Use Change and its Effects on Flooding in River Basins of Varying Topography. *AWRA 2024 Geospatial Water Technology Conference, Orlando, FL.*

10. McMillan, S.K.W.*, Winter, D., Dey, S., Hosen, J., Merwade, V., Noe, G.B., and **Saksena, S.** (2023) Restoring floodplain function and connectivity in agricultural landscapes to promote water quality benefits. *AGU Fall Meeting 2023, San Francisco, CA.*

11. Seersma, J.*, Merwade, V., and **Saksena, S.** (2023) Multi-Scale Equitable Evaluation and Comparison of the Predicted Hydrologic and Pollutant Load Performance and Ranking of Green Infrastructure with and without Accounting for Groundwater-Surface Water Interactions. *AGU Fall Meeting 2023, San Francisco, CA.*

12. Darafshani, M.S.*, Narzis, A., Singhofen, P., **Saksena, S.**, and Eisma, J.A. (2023) Green Roof and Permeable Pavement Design and Assessment for Peak Runoff and Runoff Volume Reduction: Case Study in Kashmere and Trinity/Houston Gardens, Houston, Texas. *AGU Fall Meeting 2023, San Francisco, CA.*

13. Narzis, A.*, Darafshani, M.S., **Saksena, S.,** Singhofen, P., Eisma, and J.A. (2023) Integrating Green Stormwater Infrastructure to Enhance Flood Resilience in Socially Vulnerable Coastal Communities of Houston, Texas. *AGU Fall Meeting 2023, San Francisco, CA.*

14. **Saksena, S.***, and Yeghiazarian, L. (2023) The Urban Flooding Open Knowledge Network: Current and Future Tools. *AWRA 2023 Annual Water Resources Conference, Raleigh, NC.*

15. Pal, L.*, and **Saksena, S**. (2023) A Framework for Integrative Assessment of Urban Floods Response to Changing Climate. *AWRA 2023 Annual Water Resources Conference, Raleigh, NC.*

16. **Saksena, S.*** (2022) Urban Flooding Open Knowledge Network (UFOKN): Current Products and Future Functionalities. *AGU Fall Meeting 2022, Chicago, IL.*

17. Dey, S.*, **Saksena, S.**, and Merwade, V. (2022) Developing Accuracy Benchmarks for Conceptual River Bathymetry to Improve Large-Scale Hydrologic and Hydrodynamic Modeling. *AGU Fall Meeting 2022, Chicago, IL.*

18. Dey, S.*, **Saksena, S.**, Merwade, V., and Yeghiazarian, L. (2022) AutoRAS – An Automated HEC-RAS based Short-Range Flood Forecast System at Building Level Resolution. *AGU Fall Meeting 2022, Chicago, IL.*

19. Pal, L.*, Dey, S., **Saksena, S.**, Merwade, V., and Ojha, C.S.P. (2022) Comprehensive Urban Flood Assessment Framework to Incorporate the Influence of Changing Climate. *AGU Fall Meeting 2022, Chicago, IL.*

20. Merwade, V.*, **Saksena, S.**, Dey, S., Li, P.C., and Huang, T. (2022) Improving Streamflow and Flood Predictions Through Computational Simulations, Machine Learning and Uncertainty Quantification. *AGU Fall Meeting 2022, Chicago, IL.*

21. **Saksena, S.***, and Yeghiazarian, L. (2022) The Urban Flooding Open Knowledge Network: Delivering Flood Information to Anyone, Anytime, Anywhere. *AWRA 2022 Annual Water Resources Conference, Seattle, WA.*

22. Seersma, J.*, Merwade, V., and **Saksena, S.** (2022) Resharing the Regulatory Framework: An Equitable Fully Distributed Integrated Water Resources Management Approach Applied to Optimal Green Infrastructure Selection. *AWRA 2022 Annual Water Resources Conference, Seattle, WA.*

23. Dey, S., **Saksena, S.***, and Merwade, V. (2022) Improving Surface-Subsurface Process Characterization Through Efficient Bathymetric Incorporation in Large-scale Hydrologic and Hydrodynamic Models. *AWRA 2022 Annual Water Resources Conference, Seattle, WA.*

24. Dey, S., **Saksena, S.***, Merwade, V., and Yeghiazarian, L. (2022) Hydraulic Models & Enhancing Feature Level Flood Forecasting in Near Real Time through Efficient Integration of National Water Model and HEC-RAS. *AWRA 2022 Annual Water Resources Conference, Seattle, WA.*

25. **Saksena, S.*,** Yeghiazarian, L., Johnson, M., and Shepherd, A. (2022) Urban Flooding Open Knowledge Network: Future Tools, Functionalities and Products. *AWRA 2022 Geospatial Water Technology Conference, Austin, TX.*

26. Dey, S.*, **Saksena, S.**, and Merwade, V. (2022) Improving Surface-subsurface Process Characterization through Efficient Bathymetric Incorporation in Large-scale Hydrologic and Hydraulic Models. *AWRA 2022 Geospatial Water Technology Conference, Austin, TX.*

27. Li, P.C.*, **Saksena, S.**, Dey, S., and Merwade, V. (2022) Novel Hydrologic Soil Classification Method Using Unsupervised Clustering Techniques and gSSURGO Data to Improve Soil Parameterization in the Conterminous United States. *AWRA 2022 Geospatial Water Technology Conference, Austin, TX.*

28. Dey, S.*, **Saksena, S.**, and Merwade, V. (2022) SPRING - An Automated and Flexible Framework for Developing Large-scale 3D Representations of River Network. *AWRA 2022 Geospatial Water Technology Conference, Austin, TX.*

29. **Saksena, S.***, Yeghiazarian, L., Johnson, M., and Shepherd, A. (2022) The Urban Flooding Open Knowledge Network: Delivering Flood Information to Anyone Anytime Anywhere. *AWRA 2022 Spring Conference: Water Risk Under a Rapidly Changing World, Tuscaloosa, AL.*

30. **Saksena, S.***, Dey, S., Merwade, V., Salvi, N.A., Johnson, J.M., and Yeghiazarian, L. (2021) Flood modeling using an integrated hydrosystems approach: moving beyond traditional flood mapping. *AGU Fall Meeting 2021, New Orleans, LA.*

31. Johnson, J.M*, Eyelade, D., Mohudpur, J.S., **Saksena, S**., and Yeghiazarian, L. (2021) Achieving real-time, continental, building level, inundation forecasts using the National Water Model and Open Geospatial Data. *AGU Fall Meeting 2021, New Orleans, LA.*

32. Dey, S*., Liang, C., Merwade, V., and **Saksena, S.** (2021) SPRING – An automated and flexible framework for developing large-scale 3D representations of river network. *AGU Fall Meeting 2021, New Orleans, LA.*

33. Dey, S.*, **Saksena, S.**, Merwade, V., and Singhofen, P. (2021) Effect of bathymetric representation on surface-subsurface process characterization in large-scale hydrologic and hydraulic models. *AGU Fall Meeting 2021, New Orleans, LA.*

34. Li, P.*, **Saksena, S**., Dey, S., and Merwade, V. (2021) Three-dimensional digital soil mapping of soil properties using gSSURGO for improved hydrologic modeling. *AGU Fall Meeting 2021, New Orleans, LA.*

35. Kohanpur, A.H.*, Tartakovsky, A.M., **Saksena, S.**, Dey, S., Johnson, J.M., Yeghiazarian, L., and Riasi, M.S. (2021) Parametric uncertainty quantification in urban flood models. *AGU Fall Meeting 2021.*

36. Riasi, M.S., Parisi, J., **Saksena, S.**, and Yeghiazarian, L. (2021) Role of edge dynamics in controllability of flooding networks. *AGU Fall Meeting 2021, New Orleans, LA.*

37. Merwade, V.*, Yeghiazarian, L., Arumugam, S., Cai, X., Hahmann, T., Shepherd, A., **Saksena, S.,** Johnson, J.M., and Riasi, S. (2021) The Urban Flooding Open Knowledge Network: Delivering Flood Information to Anyone, Anytime, Anywhere. *AGU Fall Meeting 2021, New Orleans, LA.*

38. McMillan, S.K.W.*, Dey, S., Donohue, S., Merwade, V., Montoya, A., Noe, G.B., **Saksena, S.**, and Winter, D. (2021) Floodplain reconnection in agricultural landscapes and tradeoffs in water quality. *AGU Fall Meeting 2021, New Orleans, LA.*

39. **Saksena, S.*,** Dey, S., Merwade, V., and Singhofen, P.J. (2021) Introduction and Significance of an Automated Flood Modeling and Forecasting Framework Using the Interconnected Channel and Pond Routing (ICPR) Model. *2021 AWRA Virtual Annual Water Resources Conference.*

40. **Saksena, S.*** (2021) Future Tools, Functionalities, and Local Applications of the Urban Flooding Open Knowledge Network. *2021 AWRA Virtual Annual Water Resources Conference.*

41. **Saksena, S.*** (2021) The Urban Flooding Open Knowledge Network (UF-OKN): Delivering Flood Information to AnyOne, AnyTime, AnyWhere. *World Environmental & Water Resources Congress 2021 (Virtual).*

42. **Saksena, S.***, Dey, S., Merwade, V., and Singhofen, S., (2021) Flood modeling using an integrated hydrosystems approach: moving beyond traditional flood mapping. *2021 UCOWR/NIWR Virtual Annual Water Resources Conference.*

43. **Saksena, S.*,** Zeng, L., Salvi, N.A., Dey, S., Merwade, V., Ramaswami, A., and Singhofen, P.J. (2020) Comparing simplistic versus complex modeling approaches for simulating localized urban flooding. *AGU Fall Meeting 2020 (Virtual).*

44. Merwade, V.*, Yeghiazarian, L., Arumugam, S., Cai, X., Shepherd, A., Johnson, M.., Hahmann, T., **Saksena, S.,** Singhofen, P., and Riasi, S. (2020) The Urban Flooding Open Knowledge Network: Delivering Flood Information to AnyOne, AnyTime, AnyWhere. *AGU Fall Meeting 2020 (Virtual).*

45. Dey, S.*, **Saksena, S.,** Merwade, V., and Singhofen, P.J. (2020) Enabling Improved Fluvial Process Characterization in Hydrodynamic and Hydrologic Models through Better Representation of River Bathymetry. *AGU Fall Meeting 2020 (Virtual).*

46. McMillan, S.K.*, Dey, S., Donohue, S., Limiac, A., Merwade, V., Montoya, A., Noe, G., **Saksena, S.,** Williams, M., and Winter, D. (2020) Integrating drivers of nutrient biogeochemistry in riverine floodplains to inform restoration design. *AGU Fall Meeting 2020 (Virtual).*

47. **Saksena, S.*,** Salvi, N.A., Dey, S., Merwade, V., Singhofen, P.J., Zeng, L., and Ramaswami, A. (2020) Hyper resolution flood modeling and forecasting using an integrated hydrosystems approach. *2020 AWRA Virtual Annual Water Resources Conference.*

48. **Saksena, S.*,** Johnson, M., Singhofen, P.J., Shepherd, A., Merwade, V., and Yeghiazarian, L. (2020) The Urban Flooding Open Knowledge Network: Modeling and Forecasting Capabilities. *2020 AWRA Virtual Annual Water Resources Conference.*

49. **Saksena, S.*,** Dey, S., Salvi, N.A., Merwade, V., Singhofen, P., Zeng, L., and Ramaswami, A. (2020) Hyper-resolution Urban Flood Modeling Using an Integrated Hydrosystems Approach. *2020 AWRA Virtual Geospatial Water Technology Conference.*

50. **Saksena, S.*,** Salvi, N.A., Dey, S., Merwade, V., Singhofen, P., Zeng, L., and Ramaswami, A. (2019) Simulating the Flood Hydrodynamics of Complex Urban Systems Using a Hyper Resolution Integrated Modeling Framework. *AGU Fall Meeting 2019, Abstract H13J-1827, San Francisco, CA*

51. Dey, S.*, **Saksena, S.,** Arra, S., Merwade, V., and Singhofen, P. (2019) Quantifying the Effect of River Channel Geometry on Fluvial Interactions across Multiple Spatial Scales. *AGU Fall Meeting 2019, Abstract EP53G-2266, San Francisco, CA.*

52. **Saksena, S.*,** Merwade, V., Singhofen, P.J., and Dey, S. (2019) Hyper Resolution Flood Modeling and Mapping using a Computationally-Efficiency Distributed Modeling Approach. *2019 CUAHSI Hydroinformatics Conference, Provo, UT.*

53. Dey, S.*, Merwade, V., and **Saksena, S.** (2019) Incorporating River Geometry in Large Scale Hydrologic and Hydrodynamic Models. *2019 CUAHSI Hydroinformatics Conference, Provo, UT.*

54. **Saksena, S.*,** Dey, S., Merwade, V., Singhofen, P.J., Zheng, L., and Ramaswami, A. (2019) Using a Computationally efficient Model Structure for Integrated Flood Risk Assessment of Urban Environments. *2019 World Environmental and Water Resources Congress, Pittsburg, PA.*

55. Dey, S.*, **Saksena., S.,** and Merwade, V. (2019) Developing High Resolution Stream Network and Riverbanks to Enable Accurate Hydrodynamic Simulations for Large Watersheds. *2019 World Environmental and Water Resources Congress, Pittsburg, PA.*

56. Dey, S.*, **Saksena, S**., and Merwade, V. (2018) An Automated Framework for Creating Hyper Resolution Hydrodynamic Models for Large Watersheds. *AGU Fall Meeting 2018, Abstract H32A-05, Washington D.C.*

57. **Saksena, S.*,** Merwade, V., Singhofen, P., and Dey, S. (2018) Enabling a Hyper-resolution Integrated Flood Modeling Framework for Urban Environments. *AGU Fall Meeting 2018, Abstract H33S-2314, Washington D.C.*

58. Merwade, V.*, Dey, S., and **Saksena, S.** (2018) Generating Bathymetry of Entire River Network At large Watershed Scale for Hydraulic/Hydrologic Modeling. *2018 AWRA Spring Specialty Conference: GIS and Water Resources X, Orlando, FL.*

59. Yeghiazarian, L.*, Myers, J., **Saksena, S.,** Riasi, S., Singhofen, P.J., and Merwade, V. (2018) Control of Multiplex Networks: Application to Coupled Surface-Groundwater Systems. *2018 AWRA Spring Specialty Conference: GIS and Water Resources X, Orlando, FL.*

60. **Saksena, S.*,** Dey, S., Merwade, V., and Singhofen, P.J. (2018) Integrated Flood Modeling of Hurricane Harvey using a Computationally Efficient Flexible Mesh Structure. *2018 AWRA Spring Specialty Conference: GIS and Water Resources X, Orlando, FL.*

61. **Saksena, S.*,** Merwade, V., and Singhofen, P.J. (2018) Using Hybrid Techniques for Incorporating Physical Processes in Large Watershed Scale Flood Simulations. *2018 AWRA Spring Specialty Conference: GIS and Water Resources X, Orlando, FL*

62. **Saksena, S.*,** and Merwade, V. (2018) Integrated Flood Modeling of the Wabash River Basin using Open Access Datasets. *2018 IGIC Annual Indiana GIS Conference, Fort Wayne, IN.*

63. Dey, S.*, **Saksena, S.,** and Merwade, V. (2017) Improving Watershed-Scale Hydrodynamic Models by Incorporating Synthetic 3D River Bathymetry Network. *AGU Fall Meeting 2017, Abstract H21D-1489, New Orleans, LA.*

64. **Saksena, S.*,** Merwade, V., and Singhofen, P.J. (2017) Using Hybrid Techniques for Generating Watershed-scale Flood Models in an Integrated Modeling Framework. *AGU Fall Meeting 2017, Abstract H21D-1491, New Orleans, LA.*

65. Jafarzadegan, K.*, Merwade, V., and **Saksena, S.** (2017) Floodplain Mapping for the Continental United States Using Machine Learning Techniques. *AGU Fall Meeting 2017, Abstract H21D-1492, New Orleans, LA.*

66. **Saksena, S.*,** Dey, S., Merwade, V., and Singhofen, P.J. (2017) Using Integrated Modeling for Generating Watershed-scale Dynamic Flood Maps for Hurricane Harvey. *AGU Fall Meeting 2017, Abstract H21D-1491, New Orleans, LA.*

67. **Saksena, S.*,** Merwade, V., Rajib, A., and Dey, S. (2017) Evaluating the Impact of Land Use Change on Future Flood Risk. *AWRA 2017 Annual Water Resources Conference Abstracts*, *Portland, OR*.

68. Dey, S., **Saksena, S.*,** and Merwade, V. (2016) Development of a 3D Stream Network and Topography for Improved Large-Scale Hydraulic Modeling. *AGU Fall Meeting 2016, Abstract H31B-1362, San Francisco, CA.*

69. **Saksena, S.*,** and Merwade, V. (2016) Evaluating the Impact of Spatial and Temporal Rainfall Variability on River-Floodplain Hydrodynamics. *AGU Fall Meeting 2016, Abstract H24B-05, San Francisco, CA.*

70. **Saksena, S.*,** and Merwade, V. (2016) An Approach to Identify Ordinary High-Water Marks using Design Flow and Watershed Characteristics. *AWRA Summer Specialty Conference (GIS and Water Resources), Sacramento, CA.*