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EDUCATION

Ph.D. 02/2012	Civil Engineering	Virginia Tech (USA)
M.S. 06/2005	Environmental Science and Engineering	Singapore-Stanford Partnership Program, Nanyang Technological University (Singapore) and Stanford University (USA)
B.E. 05/2004	Environmental Engineering	Delhi College of Engineering (India)

RESEARCH AND PROFESSIONAL EXPERIENCE

May 2019 – present

Assistant Professor, Texas A&M AgriLife Research Center at El Paso and Department of Biological and Agricultural Engineering, Texas A&M University

August 2016 – May 2019

Research Assistant Professor, Department of Civil Engineering, University of Texas at El Paso

March 2012 – July 2016

Research Associate, Occoquan Watershed Monitoring Laboratory, Department of Civil and Environmental Engineering, Virginia Tech

August 2005 – July 2007

Project Officer, School of Civil and Environmental Engineering, Nanyang Technological University

SELECTED FUNDED RESEARCH PROPOSALS

- **PD** for the project “UAS based Hyperspectral Imager” 2019-2021. Funded by USDA-AFRI. Total budget \$194,000.
- **Co-PI** for the project “North Texas Bicycle and Pedestrian Crash Analysis” **2018-2020**. Funded by TX Department of Transportation. Total amount requested is \$249,500.
- **PI** for the project “Continued Development of OCCVIZ: An open-source platform to manage and share water resources data” **2016-2018**. Funded by Virginia Tech. Total amount requested \$54,500.
- **Co-PI** for the project “Clean Water3 - Reduce, Remediate, Recycle – Enhancing Alternative Water Resources Availability and Use to Increase Profitability in Specialty Crops” **2014-2019**. Funded by USDA-NIFA for Specialty Crop Research Initiative. Total amount requested \$8,734,105. Twenty-two collaborating PIs from nine universities. Lead PI: Sarah White (Clemson University).
- **Co-PI** for the project “Chain Bridge water resources data analysis” **2014-2016**. Funded by the Metropolitan Washington Council of Governments. Total amount requested \$96,961. Lead PI: Adil Godrej, (Virginia Tech).

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- **Key personnel** for the project “Sustainable water resources for irrigated agriculture in a desert river basin facing climate change and urban growth: from characterization to solutions” **2015-2020**. Funded by USDA-NIFA. Project Director: William Hargrove (UTEP)
 - **PI** for the project “Request to acquire sensors and associated accessories for existing UAV platforms” **2017**. Funded by UTEP. Total amount requested \$10,000

PEER-REVIEWED PUBLICATIONS

Journal Papers

- Quinn, N., **S. Kumar**, R. LaPlante, F. Cubas (2019). A Rapid Screening Tool for TMDL Model Selection using TMDL Reports. *Journal of Hydrologic Engineering*. (*In press*)
- Quinn, N., **S. Kumar**, and S. Imen (2019). Use of Remote Sensing and GIS in Watershed Analysis and Developing TMDLs. *Journal of Hydrologic Engineering*, 24(4): 02519002.
- Ganjegunte, G., J. Clark, M. Parajulee, J. Enciso, **S. Kumar** (2018). Evaluation of sulfur burner for salinity management in irrigated cotton fields in the arid west Texas. *Agrostems, Geosciences & Environment*. 1:180006.
- **Kumar, S.**, G. Moglen, A. N. Godrej, H. Post, and T. J. Grizzard (2018). Trends in water yield under climate change and urbanization in the U.S. Mid-Atlantic region. *Journal of Water Resources Planning and Management*, 144 (8) pp: 05018009.
- **Kumar, S.**, T. J. Grizzard, and A. N. Godrej, (2016). Pre-development conditions to assess the impact of growth in an urbanizing watershed in northern Virginia. *Journal of Hydrology*, 540, 1066–1077.
- **Kumar, S.**, A. N. Godrej, and T. J. Grizzard (2015). A web-based environmental decision support system for legacy models. *Journal of Hydroinformatics*, 7, 874-890.
- **Kumar, S.**, A. N. Godrej, and T. J. Grizzard (2013). Watershed size effects on the applicability of regression-based methods for fluvial loads estimation. *Water Resources Research*, 49, 7698–7710.

Under review/In Preparation

- Robert, N., P. R. Anderson, **S. Kumar**, and J. Zhu. Margin of safety in TMDLs: A natural language processing aided review of the state of practice. *Journal of Hydrologic Engineering*.
- **Kumar, S.**, A. Godrej, H. Post, T. Grizzard, and K. Berger. The value of sampling—A comparison of fluvial loads computed from two methods for two different size watersheds. *Journal of Water Resources Planning and Management*.
- Lozada, M., A. Raheem, R. Issa, and **S. Kumar**. A Comprehensive Literature Review of the UAV Technology and Regulations: Trends, Applications, Limitations and Challenges of Using UAVs in the Civil Engineering Discipline. *Automation in Construction*
- Capt, T., S. Walker, **S. Kumar**. Urban Water Demand: A Statistical Optimization Approach to Modeling and Forecasting. *Environmental Modelling & Software*.

Conference Papers and Proceedings

- Majsztrik, JC, DR Hitchcock, **S Kumar**, D Sample, SA White. 2018. Clean WaterR3: Developing Tools to Help Specialty Crop Growers Understand the Costs and Benefits of Recycling Water. *Acta Horticulturae*. Proceedings of the 3rd International Symposium on Woody Ornamentals of the Temperate Zone, Number 1191, 187-192
- **Kumar, S.**, A. Godrej, and T. Grizzard (2014). An extendable experiment with GIS and ICT to make environmental data and modeling user-friendly and accessible. In: Ames, D.P., Quinn,

N.W.T., Rizzoli, A.E. (Eds.), Proceedings of the 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2

- **Kumar, S.**, A. Godrej, and T. Grizzard (2014). Using locally distributed computing to aid water quality modeling. In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), Proceedings of the 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2
- **Kumar, S.**, Godrej, A., Grizzard, T., Post, H., and Bartlett, J. (2014). A web-based water resources analysis portal for the Occoquan watershed. International Conference on Hydroinformatics. http://academicworks.cuny.edu/cc_conf_hic/400
- **Kumar, S.**, Godrej, A., and Grizzard, T. (2014). Extending the Occoquan reservoir water quality model for stakeholder involvement. International Conference on Hydroinformatics. http://academicworks.cuny.edu/cc_conf_hic/398

BOOKS EDITED

- *Total Maximum Daily Load Analysis and Modeling: Assessment of the Practice*
<https://doi.org/10.1061/9780784414712>.

INVITED SEMINARS, CONFERENCE PRESENTATIONS AND POSTERS

- **Kumar, S.** TRS Tool – Using Data Mining and Natural Language Processing to Assess the State of TMDL Development. 9th International Congress on Environmental Modelling and Software, June 25-28, 2018, Fort Collins, CO. (*Oral presentation*).
- Kobayashi, Y., **S. Kumar**, W. Atwah, A. Ellerson, G. Ganjegunte. Model to Improve Decision Making for Farms Dealing with Salinity in the South-West Region. 9th International Congress on Environmental Modelling and Software, June 25-28, 2018, Fort Collins, CO. (*Oral presentation*).
- Atwah, W., **S. Kumar**, A. Ellerson, Y. Kobayashi. Using an Aerial Multispectral Sensor in Urban Areas for Assessing Changes over Time. World Environmental and Water Resources Congress 2018, June 3-7, 2018: Minneapolis, MN. (*Oral presentation*).
- **Kumar, S.**, Atwah, W. State-of-Practice of Remote Sensing for Total Maximum Daily Load Modeling. World Environmental and Water Resources Congress 2018, June 3-7, 2018: Minneapolis, MN. (*Oral presentation*).
- Kobayashi, Y., **S. Kumar**, W. Atwah, A. Ellerson, G. Ganjegunte. A Bayesian Network Based Model for Decision Making on a Farm Scale Impacted by Salinity. World Environmental and Water Resources Congress 2018, June 3-7, 2018: Minneapolis, MN. (*Oral presentation*).
- **Kumar, S.** Water Resources Management Embracing the Data Deluge. Indian Water Resources Society (IWRs), February 16-19, 2018: Roorkee, India (**Keynote address**)
- **Kumar, S.**, N. Quinn, and S. Mubako. Innovations in use of GIS and remote sensing for TMDL analysis and modeling. World Environmental and Water Resources Congress 2017, May 21-25, 2017: Sacramento, CA. (*Oral presentation*).
- **Kumar, S.**, Water Resources Management in the Internet Age: Embracing the Data Deluge. SDSMT, February 2016: Rapid City, SD. (*Invited Seminar*)
- **Kumar, S.**, G. Moglen, A. Godrej, T. Grizzard, H. Post, and M. Barandouzi. The Occoquan Watershed: trends from 40 years of observation during a time of changing land use and climate. The EWRI Watershed Management Symposium 2015, August 5-7, 2015: Reston, VA. (*Oral presentation*).
- **Kumar, S.**, A. Godrej, J. Little, and H. Post. Next steps in reservoir monitoring and modeling: Connectivity and actionable visualizations. IWA Symposium on Lake and Reservoir Management (IWA L&RM 2015) August 4-7, 2015: Pembroke, VA. (*Oral presentation*).

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- **Kumar, S.** OccViz v2.0: A modern, interactive water quality and quantity data management and visualization platform. The 3rd CUAHSI Conference on Hydroinformatics, July 15-17, 2015: Tuscaloosa, AL. (*Oral presentation*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. Extending the Occoquan reservoir water quality model for stakeholder involvement. Th 11th International Conference on Hydroinformatics, August 17 to 21, 2014: New York. (*Oral presentation*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. A web-based water resources analysis portal for the Occoquan watershed. The 11th International Conference on Hydroinformatics, August 17 to 21, 2014: New York. (*Oral presentation*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. An extendable experiment with GIS and ICT to make environmental data and modeling user-friendly and accessible. The 7th International Congress on Environmental Modelling and Software (iEMSs), June 15-19, 2014: San Diego, California. (*Oral presentation*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. Using locally distributed computing to aid water quality modeling. The 7th International Congress on Environmental Modelling and Software (iEMSs), June 15-19, 2014: San Diego, California. (*Oral presentation*)
 - **Kumar, S.** Water resources data analysis and web-based visualization. U.S. Geological Service Virginia Water Science Center, May 2014: Richmond, VA. (*Invited Seminar*)
 - **Kumar, S.** Water resources data management and modeling for the internet age. Utah State University, November 2013: Logan, UT. (*Invited Seminar*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. Making water resources data and modeling tools accessible to local stakeholders: An ongoing experiment in the Occoquan watershed. The 2013 CUAHSI Conference on Hydroinformatics and Modeling, July, 2013: Logan, UT. (*Oral presentation*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. Going from environmental-data to knowledge using GIS and modern web techniques. The National Capital Region Water Resources Symposium, April, 2013: Washington D.C. (*Oral presentation*)
 - **Kumar, S.**, A. Godrej, and T. Grizzard. Extending a watershed and reservoir water quality model for stakeholder involvement with EDSS. Singapore International Water Week 2011: Singapore. (*Poster*)
 - **Kumar, S.** Web-GIS, water resources modeling, and stakeholders. Nanyang Technological University, July 2011: Singapore. (*Invited seminar*)
 - **Kumar, S.**, Z. Xing, and E.Y.M. Lo. Application of 3D hydrodynamic model coupled to an ecological model to the Kranji reservoir. Nanyang Technological University-Stanford University Symposium on the Environment 2005: Singapore. (*Oral presentation*)
 - **Kumar, S.**, V. Rajola, and S. Nath. Ecological sanitation - sustainable solutions for urban India. The National Conference on Innovative Approaches in Management of Environment (IAME) 2003: Delhi. (*Oral presentation*)
 - **Kumar, N.**, and S. **Kumar**. Network among environmental NGO's in India. The National Conference on Innovative Approaches in Management of Environment (IAME) 2003: Delhi. (*Oral presentation*)

SELECTED SOFTWARE DEVELOPED¹

- *Exam Randomizer* <https://github.com/skp703/radomizeExam/blob/master/Test.ipynb> (2016). A python script to generate unique, sensible multiple-choice questions for tests in large classrooms.
- *TMDL model selection tool* <https://occviz.com/tmdl/> (2016). A tool for selection of TMDL development reports based on impairment and model used for development.
- *OccViz: Occoquan system real-time data analysis and visualization portal* <https://wqdata.owml.vt.edu> and <https://mwcog.owml.vt.edu> (2013-2015). OccViz is an online real-time water resource data acquisition, curation, visualization, and analysis platform.
- *Rain Interpolator* (2015). Finds daily representative rainfall for a watershed based on daily data available from several rain stations in and around the watershed.
- *Potomac River fluvial load computation and analysis portal* (2014). The portal allows users to analyze and visualize fluvial loads for several parameters of interest at various aggregations (e.g. daily, monthly, calendar year, water year, and seasonal) for the Potomac River.
- *Occoquan system web-based Environmental Decision Support System and server grid* (2012). The web-based EDSS allows users to simulate and analyze water resources impact of land use changes using scientifically rigorous and previously calibrated Occoquan system models based on seven HSPF and two CE-QUAL-W2 implementations. All models are executed on a local network server grid, which was developed for this project.
- *Lake Morphometry Toolbox* (2008). An ArcGIS toolbox created with python scripts and models to analyze lake or reservoir morphometry.
- *Dam Break Flood Management system* (2007), GIS-based software that simulates flood flow in case of catastrophic dam break for some reservoirs in Singapore.

TEACHING/MENTORING EXPERIENCE

Courses Taught

Course Instructors

- CE 5332/6332 Modern Methods of Engineering Computation, UTEP, Spring 2018
- CE 2385 Environmental Engineering Fundamentals, UTEP, Fall 2016, 2017, and 2018
- CE 5390/4376 Advanced Topics in Civil Engineering - Applied Statistics in Civil Engineering, UTEP, Spring 2017
- CE 5291/5391 Special Topics: Big Data in Civil Engineering, UTEP, Fall 2017

Guest Lecturer

- CEE 5224 Advanced GIS –"Python and ArcGIS", Virginia Tech, Spring 2015
- "Introduction to MATLAB" for the Singapore-Stanford Partnership (SSP) Masters program, Fall 2006

Research Mentorship

Advisor

- Habibur Howlider, pursuing Ph.D., Environmental Science and Engineering, UTEP (2018-)
- Karla Madriles Ortiz, Undergraduate researcher, Department of Civil Engineering UTEP (2018-)
- Thomas Poulos, pursuing MS, Department of Civil Engineering UTEP (2018-)
- Wissam Atwah, pursuing Ph.D., Environmental Science and Engineering UTEP (2016-)
- Yohtaro Kobayashi, pursuing MS, Department of Civil Engineering UTEP (2018-)

¹ Software demonstrations available at <https://sites.google.com/site/kumarsaurav/software-developed> or <https://goo.gl/Waoa12>

Committee Member

- Abbasali Taghavighalesari (Ph.D. Department of Civil Engineering at UTEP)
- Aria Fathi (Ph.D. Department of Civil Engineering at UTEP)
- Joe Castro (MS Geological Sciences at UTEP), *Graduated 2019*
- Joe Naughton (MS Department of Civil, Construction and Environmental Engineering at Marquette University)
- Mojtaba Asadi (Ph.D. Department of Civil Engineering at UTEP)
- Roberto Camacho Barranco (Ph.D. Department of Computer Science at UTEP)
- Tahneen Jahan Neelam (MS Department of Civil Engineering at UTEP), *Graduated 2018*
- Tallen Capt (Ph.D. Department of Civil Engineering at UTEP)

PROFESSIONAL ASSOCIATIONS

Committees

- Member, ASCE-EWRI Watershed Management Technical Committee (2014-present), In-coming Secretary.
- Vice-Chair, ASCE TMDL Analysis and Modeling Task Committee (2014-present).
- Representative to the Commission on Graduate Studies and Policies at Virginia Tech (2010-2011).
- Chair, the Graduate Students Association, Virginia Tech-NCR Campus (2009-2010).

Memberships

- American Society of Civil Engineers
- The International Environmental Modelling & Software Society
- American Geophysical Union

Journal Editor and Reviewer

- Guest Editor for special issue of the Journal of Hydrologic Engineering on TMDL modeling.
- Reviewer for:
 - Environmental Engineering Science
 - Environmental Modelling & Software
 - International Journal of Transportation Science and Technology
 - Journal - American Water Works Association
 - Journal of Environmental Engineering
 - Journal of Hydrologic Engineering
 - Journal of Hydrology
 - Water Environment Research
 - Water Resources Research
 - Water Science and Engineering