

Curriculum Vitae

Alfred Jayakar Kalyanapu, PhD
Updated August 26th, 2019

Associate Professor
Department of Civil & Environmental Engineering
Tennessee Tech University
1020 Stadium Drive, PH 334, Cookeville, TN 38505
Phone: (931) 372-3561 ; Fax : (931) 372-6239
E-mail: akalyanapu@tntech.edu
Link: www.techwarms.org



Education

NIT, Warangal, India	Civil Engineering	B.Tech, 2003
The University of Utah	Civil Engineering	MS, 2007
The University of Utah	Civil and Environmental Engineering	PhD, 2011

Research Areas

- Computational Hydraulics & Hydrology
- Hydraulic/Hydrologic Modeling
- Climate Impacts
- Urban Water Management
- Regional Scale Flood Modeling & Simulation
- GIS Applications in Water Resources Engineering

Professional Experience

Associate Professor (2017 – present)

Department of Civil and Environmental Engineering, Tennessee Tech University
Cookeville, TN.

Assistant Professor (2011 – 2017)

Department of Civil and Environmental Engineering, Tennessee Tech University
Cookeville, TN.

Research Collaborator (2009 – 2011)

Scientific Computing and Imaging (SCI) Institute, NVIDIA Center for Excellence
University of Utah, Salt Lake City, UT

Research Activities: Graphics Processor Unit (GPU) CUDA, C++ programming, High
Performance Computing, Real-time Flood Modeling and Simulation,
Visualization, Hydraulic Modeling.

Graduate Research Assistant (2004 – 2011)

Department of Civil and Environmental Engineering, University of Utah, Salt Lake City, UT
Research Projects:

Flood Modeling and Uncertainty Analysis: PhD Dissertation

GPU programming using CUDA and OpenGL, Real-time Flood Modeling and Simulation using C++, MATLAB & ArcGIS.

Integrated Flood Modeling Framework: Project funded by Los Alamos National Laboratory. Masters Research – Numeric Hydrologic Modeling
Developed numeric based 1D Distributed Hydrologic model. Using VB.NET to integrate hydrologic model output into flood modeling framework. Performed floodplain mapping using this framework.

Dolores River Floodplain Mapping: Project funded by University of Utah.

100 yr Floodplain mapping. Hydraulic Modeling using HEC-RAS & GeoRAS.

Satellite precipitation based runoff modeling: Project funded by NASA.

Hydrologic Modeling using HEC-HMS, Radar Precipitation Modeling using WMS & GeoHMS.

Urban Morphological Land Cover Classification: Project funded by DTRA.

Urban Land Cover classification using SRTM, NLCD, Landsat TM GIS & Remote Sensing data for Urban Canopy Parameter extraction for use in Meteorological models.

Graduate Research Assistant (Spring '06 to Spring '07)

Systems Engineering and Integration, Los Alamos National Laboratory, Los Alamos, NM

Research Project: National Infrastructure Simulation and Analysis Center's Water

Infrastructure Simulation Environment.

Developed 1D Hydrologic model, developed automated hydraulic cross section extraction using VB.NET programming.

Aarvee Associates, Hyderabad, India (May '03 to August '04)

Title: Graduate Trainee Engineer

Responsibilities:

- Underground drainage, water supply and stormwater drainage system design
- Conducting Feasibility Survey and Detailed Project Report
- Conducting Preliminary Engineering and Railway Traffic survey
- Water Supply Network Decision Support System design

Teaching Experience

Tennessee Tech University, Department of Civil & Environmental Engineering

- Undergraduate: Hydraulics (2012, 2013, 2014), Engineering Hydrology (2012, 2014)
- Graduate: Open Channel Hydraulics (2011, 2012, 2013, 2014), Advanced Modeling and Simulation for Flood Risk Management (2013)

University of Utah, Department of Civil and Environmental Engineering

- Undergraduate Required: Hydraulics (Spring 2009)

University/Department Experience

- **Library Committee, Department of Civil & Environmental Engineering**

- **TAF Committee, Department of Civil & Environmental Engineering**
- **Undergraduate Research Committee, Department of Civil & Environmental Engineering**
- **Tennessee Technological University, Rural Policy Institute**

Past Academic Activities

Graduate Teaching Assistant (Fall '07–Spring '08 & Fall '10): Civil and Environmental Engineering, University of Utah

Instructor (Spring 2009): Hydraulics (CVEEN 3410). Civil and Environmental Engineering, University of Utah

Teaching Assistant Scholar (2008-2009): Center for Teaching and Learning Excellence, University of Utah, Salt Lake City, UT

Engineering Education Research (2008-2009): Publication for American Society of Engineering Education (ASEE) for 2009 ASEE Annual Conference & Exposition, Austin, TX.

Recent Funded Projects (Total funding as PI: \$959,555; as Co-PI: \$2,845,920)

Planning Watershed-wide Stormwater Management in an Underserved Community of Tennessee through University-Community Partnership, Tennessee Department of Environment and Conservation, Ongoing (Role: Co-PI, \$52,024)

Development of GIS-based Watershed Vulnerability Assessment (GAVA) Tool for HUC-12 Level Watersheds in Tennessee, NRCS, Ongoing (Role: PI, \$118,213)

Development and Improvement of high-resolution Flood2D-GPU modeling for ORNL HPC Environment, ORNL/US Air Force, Ongoing (Role: PI, \$296,192)

Assessing Nutrient Retention of Wetlands Reserve Program (WRP) Easements in Kentucky and Tennessee, TNC/NRCS, Ongoing (Role: Co-PI, \$1,957,728)

Low-cost real-time streamflow network for Falling Water River Watershed, USGS 104B Program, TNWRRC, Ongoing (Role: PI, \$16,459)

Proof-of-Concept GIS-based Vegetated Swale Algorithm for TDOT Highways (GV-SwATH), ENSAFE, Ongoing (Role: PI, \$185,193)

Performance Evaluation of Existing Vegetated Swales for Stormwater Runoff Reduction from Tennessee Department of Transportation Highways, ENSAFE, Ongoing (Role: Co-PI, \$271,011)

Increasing the Resilience of Agricultural Production in the Tennessee and Cumberland River Basins through More Efficient Water Resource Use, USDA-NIFA funded project, Ongoing, (Role: Co-PI, TTU Portion - \$265,230)

Toward Developing a Watershed Plan for the Falling Water River Watershed, Tennessee Department of Environment and Conservation, 2016 (Role: Co-PI, \$22,072)

Falling Water River Watershed Monitoring Plan, Tennessee Department of Environment and Conservation, 2016 (Role: Co-PI, \$46,307)

Development of Integrated DHSVM-Flood2D-GPU modeling framework for regional-scale modeling for high-resolution rapid flood risk assessment, ORNL, 2016 (Role: PI, \$60,019)

Analyzing Precipitation Patterns along I-40 Stretch near Mt. Juliet, Tennessee, External grant from Tennessee Department of Transportation, Summer 2014 (Role: PI, \$8,249)

Development of Obed Watershed Water Resources Planning Tools and Monitoring Procedures to Assess Future Economic Growth, Tennessee Healthy Watershed Initiative, Summer 2014, (Role: Co-PI, \$199,999)

Software Development (indicates students)*

Watershed Quality Index Tool (2014). Python, ArcGIS & Excel. GIS-based user-friendly tool to adequately assess alternative environmental and financial costs associated with changes in land and water resources practices. Watershed Quality Index (WQI)-based planning tool illustrates, in simplistic terms, the positive and/or negative impacts of land and water resources practices on receiving water quality and quantity. Programmers: Nasrin Alamdari*, Yvette Clark, Alfred Kalyanapu

GIS-based Digital Elevation Model Correction Techniques (2013). Python, ArcGIS & Excel. Digitally enhance the channel conveyance of National Elevation Dataset. Primary Programmer: Md Nowfel Mahmud Bhuyian*

Monte Carlo Flood Risk Framework (2011). C++, CUDA & GIS. Includes three modules: Monte Carlo Sampling; Geospatial Output Analysis; Flood Risk Analysis. Generates Probability weighted flood risk maps in terms of population at risk. Primary Programmers: Alfred Kalyanapu

Flood2D-GPU (2009). C and CUDA code. GPU implementation of Flood2D-CPU. Used for real-time flood modeling. Capable to visualize flood model results in ArcGIS. OpenGL based front-end visualization tool available. Primary Programmers: Alfred Kalyanapu and Siddharth Shankar.

Flood2D-CPU. (2009). C++ code. Developed to predict flood resulting from various events including dam break, storm surge, rainfall etc. Uses readily available USGS DEM data as input and outputs flood depths and velocities. Solves 2D shallow water equations using first order accurate upwind finite difference. Primary Programmer: Alfred Kalyanapu.

GIS-based 1D DHM. (2007). Visual Basic .NET and Fortran 90 code for ESRI ArcGIS. Distributed hydrologic model developed to predict overland flow from rainfall events over medium to larger geographical areas. Model uses readily available data downloadable from the internet as input and outputs flow hydrographs. Visual Basic .NET integrates customized Fortran DLL with Hydrologic engine that solves 1D diffusive wave equations using backward finite difference. Primary Programmer: Alfred Kalyanapu.

Flood Prediction Model. (2006). Visual Basic .NET code for ESRI ArcGIS. Developed to rapidly predict flooding from extreme rainfall events over large geographical areas. Model uses readily available data downloadable from the internet as input and output flood depth contours. Primary Programmers: David Judi and Alfred Kalyanapu.

Channel Morphology Tool (CMT) (2006). Visual Basic .NET code for ESRI ArcGIS. Developed to rapidly extract channel cross-sections from USGS DEM data downloadable from the internet. Cross sections are compatible with both USACE HEC-RAS and EPA SWMM5. Primary Programmers: David Judi and Alfred Kalyanapu.

Water Distribution Model Builder (WDMB), Version 1.1. (2005). Visual Basic for Applications code for ArcGIS. Graphical User Interface developed to convert GIS shapefiles of water distribution network into EPANET network for water distribution modeling. Programmers: Pooja Mutha and Alfred Kalyanapu.

Miscellaneous software. a) C++ based random number generator. b) MATLAB based code to input ASCII raster files and create graphics and videos.

Professional License/Registration and Memberships

- Passed Fundamentals of Engineering (FE) Exam
 - Member
 - American Society of Civil Engineers (ASCE)
 - American Water Resources Association (AWRA)
 - American Geophysical Union (AGU)
 - American Society of Engineering Education (ASEE)
 - ASCE Environmental Water Resources Institute (EWRI)
 - American Association for Advancement of Science (AAAS)
 - Sigma Xi Research Honor Society
 - Chi Epsilon Honor Society
 - Leadership Positions
 - President – TN AWRA, Executive Committee (*present*)
 - President-Elect, ASCE Computational Hydraulics Committee (*present*)
 - Member, TN H2O Surface Water Subcommittee (2018 – *present*)
 - Secretary – TN AWRA, Executive Committee (2011-2014)
 - 2011, TBR Research Academy Fellow, 2011-2012
 - Member- AWRA Utah Section Executive Committee (2009-2011)
 - President– AWRA, University of Utah Student Chapter (2008-09)
 - President– WEAU, University of Utah Student Chapter (2008-09)
 - Committee Member – Student Advisory Committee, Department of Civil & Environmental Engineering, University of Utah (2008-2009)
 - Student Officer – Chi Epsilon, University of Utah Chapter (2008-2009)
 - Founding Member, University of Utah AWRA Student Chapter 2008
 - Founding Member, University of Utah WEAU Student Chapter 2008
-

Synergistic Activities

- **Associate Editor** of the Special Issue of the Earth Interactions Online Journal published by the American Geophysical Union, American Meteorological Society and American Association of Geographers on the theme “Human Impact on Climate Extremes for Water Resources Infrastructure Design, Operations and Risk Management” published in 2013.
- **Contributing author** of a book chapter titled “Climate vulnerabilities and adaptation of urban water infrastructure systems” to Volume 5: Vulnerability of Water Resources to Climate series in Climate Vulnerability.
- Co-Author of the chapter titled “Water Cycle”, part of “Guidance Manual for Rainwater Harvesting as a Stormwater Best Management Practice”, a Report of the State of the Practice and Recommended Guidance by the EWRI Rainwater Harvesting Technical Committee (in preparation).
- **Research Fellow** of the Tennessee Board of Regents (TBR) Research Academy (2011-2012).
- Journal Reviewer:
 - ASCE Journal of Hydrologic Engineering
 - Journal of Flood Risk Management
 - Journal of Hydrology
 - Environmental Modelling & Software
 - Water Resources Management
 - Climatic Change
 - Volume 5: Vulnerability of Water Resources to Climate series in Climate Vulnerability.
- Panel Reviewer for EPA, NSF and DOE
- Active Volunteer for Outreach Activities including [Engineering A Future](#) at TTU and Governor’s School for Emerging Technologies.

Major Honors and Achievements

- 2016 Kinslow Research Award, College of Engineering, TTU
- 2015 NITW Outstanding Young Alumni Professional Achievement Award
- 2015 Outstanding Reviewer, Environmental Modelling & Software Journal
- 2014, Sigma Xi Faculty Research Award
- 2013, Primary Author, **Commended Paper** for the Outstanding Paper Award, **Journal of Flood Risk Management**
- 2010, Founding member of AWRA Student Chapter, 2010 National Outstanding Student Chapter of AWRA
- 2009, Offered unique opportunity to teach undergraduate senior level Hydraulics course by Department of Civil and Environmental Engineering
- 2009, Best Paper, Graduate Division, J. Paul Riley American Water Resources Association (AWRA) Utah Section Annual Student Conference and Paper Competition
- 2008, Outstanding Teaching Assistant, University of Utah, College of Engineering

- 2008, Co-Author, Best Paper, Graduate Division, J. Paul Riley American Water Resources Association (AWRA) Utah Section Annual Student Conference and Paper Competition
- 2007 & 2008, Scholarship Recipient, Department of Civil & Environmental Engineering, University of Utah

Programming & Modeling Skills

- Modeling: HEC-HMS, HEC-RAS, HEC-FIA, WMS, GeoRAS, GeoHMS, AnnAGNPS, HSPF, EPA SWMM, EPANET,
- Packages: ESRI ArcGIS, ArcGIS Pro, Matlab, ENVI
- Programming: C, C++, GPGPU (OpenGL, CUDA), VB.NET, Python
- Platforms & Environments: Linux, Windows, Visual Studio, Eclipse

Peer-reviewed Publications (indicates student authors)*

1. **Ahmadisharaf***, E., **Kalyanapu**, A. J., and Bates, P. D. (2018). "A probabilistic framework for floodplain mapping using hydrologic modeling and unsteady hydraulic modeling", *Hydrological Sciences Journal*, DOI: 10.1080/02626667.2018.1525615.
2. **Ahmadisharaf***, E., **Kalyanapu**, A. J., Lillywhite, J. R., and Tonn, G. L. (2018). "A probabilistic framework to evaluate the uncertainty of design hydrograph: case study of Swannanoa River Watershed", *Hydrological Sciences Journal*, DOI: 10.1080/02626667.2018.1525616.
3. **Bhuyian***, Md. N. M., **Kalyanapu**, A. J., and Hossain, F. (2017). "Evaluating Conveyance-Based DEM Correction Technique on NED and SRTM DEMs for Flood Impact Assessment of the 2010 Cumberland River Flood" *Geosciences*, 7, 132; doi:10.3390/geosciences7040132.
4. Marshall, R., Ghafoor, S. K., **Kalyanapu**, A. J., Rogers, M., and **Dullo***, T. T. (2017). "Performance Improvement of a Two-dimensional Flood Simulation Application in Hybrid Computing Environments", *Proceedings of the Fifth International Symposium on Computing and Networking (CANDAR 17)*, November 19-22, 2017, Aomori, Japan.
5. **Dullo***, T. T., **Kalyanapu**, A. J., and Teegavarapu, R. S. V. (2017). "Evaluation of Changing Characteristics of Temporal Rainfall Distribution within 24-hour Duration Storms and their influences on Peak Discharges: A Case Study of Asheville, North Carolina" *Journal of Hydrologic Engineering*, 22(11):05017022.
6. **Bhuyian***, Md. N. M., and **Kalyanapu**, A. J. (2017). "Accounting Digital Elevation Uncertainties for Flood Consequence Assessment" *Journal of Flood Risk Management*, DOI: 10.1111/jfr3.12293
7. **Ahmadisharaf***, E. A., **Kalyanapu**, A. J., and Chung, Eun-Sung. (2017). "Sustainability-Based Flood Hazard Mapping of the Swannanoa River Watershed", *Sustainability*, 9, 1735, doi:10.3390/su9101735.
8. **Ahmadisharaf***, E., and **Kalyanapu**, A. J., Thames, B. A., and Lillywhite, J. (2016). "Application of a probabilistic framework for comparison of dam breach prediction methods", *Environmental Modelling and Software*, doi: 10.1016/j.envsoft.2016.09.022.

9. **Ahmadisharaf***, E., **Kalyanapu**, A. J., and Chung, E. –S. (2015). “Spatial probabilistic multi-criteria decision making for assessment of flood management alternatives”, *Journal of Hydrology*, Vol. 533, 365-378, doi: [10.1016/j.jhydrol.2015.12.031](https://doi.org/10.1016/j.jhydrol.2015.12.031)
10. **Ahmadisharaf***, E., **Kalyanapu**, A. J., and Chung, E. –S. (2015). “Evaluating the effects of flood duration and velocity on selection of flood management alternatives using multi-criteria decision making” *Water Resources Management*, 29(8), pp 2543-2561.
11. **Bhuyian***, Md. N. M., and **Kalyanapu**, A. J. (2014). “An Approach for DEM Correction by Improving Channel Conveyance” *Journal of Hydrologic Engineering*, doi: [10.1061/\(ASCE\)HE.1943-5584.0001020](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001020)
12. **Kalyanapu**, A.J., Judi, D.R., McPherson, T.N. and Burian, S.J. (2014), Annualised risk analysis approach to recommend appropriate level of flood control: application to Swannanoa river watershed. *Journal of Flood Risk Management*. doi: 10.1111/jfr3.12108
13. **Kalyanapu**, A. J., Hossain, F., Yigzaw, W., Hossain, A., and C. K. Shum. (2013). “Investigating the performance of American River Flood Control System under changes in Probable Maximum Flood due to effects of Artificial Reservoir Size and Land Use/Land Cover Patterns” *Earth Interactions Journal, Special Issue. (AGU-AMS-AAG)*,17, 1–24. doi: <http://dx.doi.org/10.1175/2012EI000496.1>.
14. Yigzaw, W., Hossain, F., and **Kalyanapu**, A. J. (2013). “Comparison of PMP-driven Probable Maximum Floods with Flood Magnitudes due to Increasingly Urbanized Catchment: The Case of American River Watershed”, in Special Issue Edition: “Human Impact on Climate Extremes for Water Resources Infrastructure Design, Operations and Risk Management”, *Earth Interactions Journal, AGU-AMS-AAG*, 17, 1–15. doi: <http://dx.doi.org/10.1175/2012EI000497.1>.
15. Burian, S.J., Walsh, T., **Kalyanapu**, A.J., and Larsen, S.G. (2013). “Climate vulnerabilities and adaptation of urban water infrastructure systems.” In: *Climate Vulnerability (Pielke, R. Sr, Editor in Chief), Volume 5: Vulnerability of Water Resources to Climate*, Hossain, F. (Editor), Elsevier Inc., Academic Press, 87-107p.
16. Hossain, F., and **Kalyanapu**, A. J. (2012). “Cities, Dams and Extreme Weather” *Civil Engineering – ASCE*, 82(12), December 2012, 68-71.
17. Yigzaw, W., Hossain, F., and **Kalyanapu**, A. J. (2012). “Impact of artificial reservoir size and land use/land cover patterns on estimation of probable maximum flood: The case of Folsom Dam on American River” *Journal of Hydrologic Engineering*, 10.1061/(ASCE)HE.1943-5584.0000722.
18. **Kalyanapu**, A. J., Judi, D. R., McPherson, T. N., and Burian, S. J. (2011) “Monte Carlo based flood modelling framework for estimating probability weighted flood risk” *Journal of Flood Risk Management*, 5, 37-48.
19. **Kalyanapu**, A. J., Shankar, S., Pardyjak, E. R., Judi, D. R., and Burian, S. J. (2011). “Assessment of GPU computational Enhancement to a 2D Flood Model.” *Environmental Modelling & Software*, 26, 1009-1016.
20. **Kalyanapu**, A. J., Burian, S., and McPherson, T. (2009). “Effect of land use-based surface roughness on hydrologic model output.” *Journal of Spatial Hydrology*, 9(2), 51-71.
21. Burian, S., **Kalyanapu**, A. J., Houdeshel, D., Judi, D., and Pomeroy, C. (2009). “Web-based virtual laboratory for water resources engineering education.” *American Society of Engineering Education (ASEE) Annual Conference Proceedings*, 14-17 June 2009, Austin, TX.

22. Judi, D., **Kalyanapu, A. J.**, Gilliland, A., McPherson, T., and Burian, S. (2008). "Integration of SWMM into a dam break, hurricane, and extreme flood modeling and damage assessment framework." in *Conceptual Modeling of Urban Water Systems*, Monograph 17, CHI, Toronto, Canada, pp. 215-226.
23. Judi, D., **Kalyanapu, A. J.**, Burian, S., Daniel, B., and McPherson, T. (2007). "Wide-area flood inundation and infrastructure risk assessment simulation framework." *Proceedings of the 2nd IASTED International Conference on Water Resources Management*, pp. 182-186, Anaheim, CA.

Manuscripts Forthcoming (indicates student authors)*

1. **Bhuyian***, Md. N. M., and **Kalyanapu, A. J.** "Assessing temporal uncertainty in a Global DEM due to change in river planform and its impact on flood modeling" (*under review*).

Conference Proceedings and Final Project Reports (indicates student authors)*

1. **Dullo***, T., Gangrade, S., Marshall, R., Islam, S. R., Ghafoor, S., Kao, S.-, C., and **Kalyanapu, A. J.** (2017). "A large-scale simulation of climate change effects on flood regime – A case study for the Alabama-Coosa-Tallapoosa River Basin" 2016 American Geophysical Union Fall Meeting, 12-16th December 2017, San Francisco, CA.
2. **Dullo***, T., Gangrade, S., Marshall, R., Islam, S. R., Ghafoor, S., Kao, S.-, C., Preston, B., and **Kalyanapu, A. J.** (2017). "The vulnerability of critical energy infrastructures to climate change induced flooding: A case study for the Alabama-Coosa-Tallapoosa River Basin" *Creative Solutions for a Changing Environment*, World Environmental & Water Resource Congress, Sacramento, CA, May 21-25, 2017.
3. **Bhuyian***, M. N. M., and **Kalyanapu, A. J.** (2017). "Assessing temporal uncertainty of SRTM DEM due to change in river planform and its impact on hydrodynamic modeling." *EWRI- World Environmental & Water Resources Congress*, Sacramento, CA, May 21-25, 2017.
4. **Bhuyian***, M. N. M., and **Kalyanapu, A. J.** (2017). "Assessing the Uncertainty of 100-year Flood Extent in a Morphologically Active River - a Case Study in the Obion River" 26th Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association, Montgomery Bell State Park, Burns, TN, April 2-5, 2017.
5. **Brackins***, J.T., **Davis***, A.J., **Wilson***, S.E., and **Kalyanapu, A.J.** (2017). "Development of a hydrologic modeling system for the Dry Valley catchment, Putnam County, Tennessee". *Proc., 26th Tennessee Water Resources Symposium*, TNAWRA, Nashville, TN.
6. **Brackins***, J. and **Kalyanapu, A.** (2016) Using ADCIRC and HEC-FIA Modeling to Predict Storm Surge Impact on Coastal Infrastructure. *World Environmental and Water Resources Congress 2016*: pp. 203-212. doi: 10.1061/9780784479841.023
7. **Dullo***, T. T., **Kalyanapu, A. J.**, and Teegavarapu, R. (2016). "*Comparative Evaluation of Standard NRCS Storm and Observed Rainfall Distributions*" 2016 World

- Environmental & Water Resources Congress, West Palm Beach, Florida, May 22-26, 2016 (Poster Presentation).
8. **Ahmadisharaf***, E., **Kalyanapu**, A. J., and Lillywhite, J. (2016). "A Probabilistic Hydrologic Model to analyze the Uncertainty of the Design Hydrograph Attributes" 25th Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association, Montgomery Bell State Park, Burns, TN, April 11-12, 2016.
 9. **Dullo***, T.T., **Kalyanapu**, A. J., and Hawkins, S. A. (2016). "Investigating the performance of one- and two-dimensional flood models in a channelized river network: A case study of Obion River System" 25th Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association, Montgomery Bell State Park, Burns, TN, April 11-12, 2016.
 10. **Bhuyian***, Md. N. M., and **Kalyanapu**, A. J. (2016). "Developing Flood Consequence Correlation Using Global DEMs" 25th Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association, Montgomery Bell State Park, Burns, TN, April 11-12, 2016.
 11. **Brackins***, J. T., and **Kalyanapu**, A. J. (2016). "Prediction of Storm Surge Impacts on Coastal Infrastructure Using AD-CIRC and HEC-FIA Models" 25th Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association, Montgomery Bell State Park, Burns, TN, April 11-12, 2016.
 12. Poston, K. B., Reed, E., Munasque, L., VandenBerge, D., and Kalyanapu, A. J. (2016). "2015 South Carolina Flooding and Dam Failures" Dam Safety 2016 Conference, Association of Dam Safety Officials, Philadelphia, PA, September 11-15, 2016.
 13. **Dullo***, T. T., **Kalyanapu**, A.J., Ghafoor, S. K., Marshall, R.J., Tindall, K. J., Anantharaj, V., Shih-Chieh, K., and Gangrade, S. (2015). "Computational performance of a MPI-enabled and GPU-accelerated two-dimensional flood model" 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December, 2015.
 14. **Dullo***, T. T., **Kalyanapu**, A. J., Thornton, J. C., Auld, L. A., and Hawkins, S. A., (2015). "*Investigating the performance of One- and Two- Dimensional Flood Models in a Channelized River Network: A Case Study of the Obion River System.*" 2015 American Geophysical Union (AGU) Fall meeting, December 14-18, 2015, San Francisco, CA.
 15. **Dullo***, T. T., **Kalyanapu**, A. J., Ghafoor, S., Anantharaj, V., Marshall, R., Tatarczuk, J., and Shih-Chieh, K., (2015). "*Computational Performance of a Two-Dimensional Flood Model in Single and Multiple GPU Frameworks.*" European Geosciences Union General Assembly 2015, April 12-17, 2015, Vienna, Austria.
 16. **Dullo***, T. T., and **Kalyanapu**, A. J., (2015). "*Calibration of Levee Breach: A case study on New-Madrid Floodway, Illinois, US.*" World Environmental and Water Resources Congress 2015, May 17-21, 2015, Austin, TX.
 17. **Kalyanapu**, A. J. (2015). "Challenges and Advances of Modeling Flood Hazards in the 21st Century: Use of Gaming Technology, Monte Carlo Methods and Geo-spatial analysis for realistic predictions" 40th Natural Hazards Research and Applications Workshop, Broomfield, Colorado, July 19-22, 2015.

18. **Bhuyian***, N. M., Thornton*, J. C., and **Kalyanapu**, A. J. (2015). "Developing 'Flood Loss Curve' for City of Sacramento", Mitigation on the Mind, 2015 ASFP National Conference, Atlanta, GA, June 2015.
19. Md N. M. **Bhuyian***, A. **Kalyanapu**, and F. Hossain. (2015). Estimating relative impacts for difference sources of digital elevation models for flood consequence assessment for extreme flood events, World Environmental and Water Resources Congress 2015.
20. **Ahmadisharaf***, E., and **Kalyanapu**, A. (2015). "Investigation of the impact of streamflow temporal variation on dam overtopping risk: Case study of a high-hazard dam" World Environmental and Water Resources Congress 2015.
21. **Thornton***, J., Clark, Y., George, D., Datta, T., **Alamdari***, N., and **Kalyanapu**, A. "Modeling Impacts of Land Use/ Land Cover Change of Obed River Watershed Using Watershed Quality Index (WQI) Model" World Environmental and Water Resources Congress 2015.
22. **Ahmadisharaf***, E., **Kalyanapu**, A. J. (2015) "A risk and reliability analysis approach to investigate the impact of reservoir inflow change on dam overtopping." 24th Tennessee Water Resources Symposium, April 1-3, 2015, Montgomery Bell State Park Burns, TN.
23. **Dullo***, T. T., and **Kalyanapu**, A. J., (2015). "*Calibration of Levee Breach: A case study on New-Madrid Floodway, Illinois, US.*" 2015 Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association (TNAWRA), April 1-3, 2015, Montgomery Bell State Park Burns, TN.
24. **Kalyanapu**, A.J., Ghafoor, S. K., Marshall, R.J., **Dullo***, T. T., Judi, D. R., and Shankar, S. (2014). "Benchmark Exercise for Comparing the Computational Performance of Two-Dimensional Flood Models in CPU, Multi-CPU, and GPU Frameworks" *World Environmental and Water Resources Congress 2014*: pp. 1322-1331, doi: 10.1061/9780784413548.133
25. **Kalyanapu**, A. J., Hossain, F., Yigzaw, W., **Bhuyian***, Md., N. M., and Woldemichael, A. (2014). "Consequence Estimation on American River due to changes in PMFs affected by Reservoir size and LULC patterns" *WATER WITHOUT BORDERS: Sustainable Environmental and Water Resources Solutions for a World Without Borders*, World Environmental and Water Resources Congress 2014, June 1-5, 2014, Portland, OR.
26. **Ahmadisharaf***, E., Kalyanapu, A. J., Lillywhite, J., and Thames, B. (2014). "Probabilistic analysis to evaluate dam breach methodologies on downstream flood hazard" *WATER WITHOUT BORDERS: Sustainable Environmental and Water Resources Solutions for a World Without Borders*, World Environmental and Water Resources Congress 2014, June 1-5, 2014, Portland, OR.
27. Thames, B., and **Kalyanapu**, A. J. (2013). "Assessment of ICOLD Benchmark Case Study using Flood2D-GPU and HEC-FIA", Zenz, G., and Goldgruber, M. (Eds), International Commission on Large Dams Proceedings of the 12th International Benchmark Workshop on Numerical Analysis of Dams, Austrian National Commission on large Dams, pp. 309-323.
28. **Ahmadisharaf***, E., and **Kalyanapu**, A. J. (2013). "Integrated 2D Flood Simulation and Spatial Compromise Programming for Assessment of Flood Control Alternatives", 23rd

- Tennessee Water Resources Symposium, TN AWRA, Montgomery Bell State Park, November 4-6, 2013.
29. **Bhuyian***, Md. N. M., and **Kalyanapu**, A. J. (2013). "Applying DEM Correction Algorithm to derive Synthetic Cross Sections for Flood Inundation Modeling for Cumberland River near Nashville", 23rd Tennessee Water Resources Symposium, TN AWRA, Montgomery Bell State Park, November 4-6, 2013.
 30. **Alamdari***, N., **Kalyanapu**, A. J., George, D., and Clark, Y. (2013). "Evaluating the performance of AnnAGNPS Model in simulating surface runoff, sediment yield and nutrient loads: Case study of Obed River Watershed", 23rd Tennessee Water Resources Symposium, TN AWRA, Montgomery Bell State Park, November 4-6, 2013.
 31. **Ahmadisharaf***, E., **Bhuyian***, N. M., and **Kalyanapu**, A. J. (2013). "Impact of Spatial Resolution on Downstream Flood Hazard due to Dam Break Events Using Probabilistic Flood Modeling," Proceedings of Dam Safety 2013, September 8 – 12, 2013, Providence, RI.
 32. **Bhuyian***, Md., N. M., and **Kalyanapu**, A. J. (2013). "DEM Correction Algorithm to derive Synthetic Cross Sections for Flood Inundation Modeling for Cumberland River near Nashville", 2013 Water Professionals Conference, Water Environment Association KY/TN, Louisville, KY.
 33. **Ahmadisharaf***, E., and **Kalyanapu**, A. J. (2013). "Impact of considering flow velocity and inundation duration in flood management decisions", ", 2013 Water Professionals Conference, Water Environment Association KY/TN, Louisville, KY.
 34. **Ahmadisharaf***, E., and **Kalyanapu**, A. J. (2013). "Impact of considering flow velocity and inundation duration in flood management decisions", 2013 Student Research Day, Tennessee Technological University, Cookeville, TN.
 35. **Bhuyian***, Md., N. M., and **Kalyanapu**, A. J. (2013). "DEM Correction Algorithm to derive Synthetic Cross Sections for Flood Inundation Modeling for Cumberland River near Nashville", 2013 Student Research Day, Tennessee Technological University, Cookeville, TN.
 36. **Kalyanapu**, A. J. (2013). "Confessions of a novice Class Room Technology (CRT) user - Through the eyes of a new faculty member", 2013 ASEE South Eastern Section Conference, Tennessee Technological University, Cookeville, TN, March 10th – 12th, 2013.
 37. Lillywhite, J., and **Kalyanapu**, A. J. (2012). "Using Monte Carlo simulation to estimate the impact of hydrologic uncertainty on flood risk" 48th Annual Water Resources Conference, American Water Resources Association, Jacksonville, FL, November 12-15, 2012.
 38. **Kalyanapu**, A. J., Hossain, F., Yigzaw, W. Y., Shankar, S., and Judi, D. R. (2012). "Probabilistic flood risk management using Monte Carlo based fast 2D flood model to incorporate uncertainty" 22nd Tennessee Water Resources Symposium, TN AWRA, Montgomery Bell State Park, April 11-13, 2012.
 39. Schaney, C., and **Kalyanapu** A. J. (2012). "Understanding Flood Events in the Greater Nashville Metropolitan Area 1970 - 2010: Correlating Urban Growth with Analysis of Storm Water Discharge in the Cumberland River Watershed" 22nd Tennessee Water Resources Symposium, TN AWRA, Montgomery Bell State Park, April 11-13, 2012.

40. Judi, D., **Kalyanapu, A. J.**, and Okhuysen, B. (2011). "Regional distributed hydrologic modeling using GPU." 47th Annual Water Resources Conference, American Water Resources Association, Albuquerque, NM, November 7-10, 2011.
41. Lillywhite, J., and **Kalyanapu, A. J.** (2011). "Water supply reliability assessment using Monte Carlo Simulation." 47th Annual Water Resources Conference, American Water Resources Association, Albuquerque, NM, November 7-10, 2011.
42. **Kalyanapu, A. J.**, Shankar, S., Judi, D., Stephens, A., McPherson, T., and Burian, S. (2010). "Performance comparison of GIS-based CPU, Multi-threading and GPU enhanced 2D flood models." AWRA Spring Specialty Conference, Orlando, FL.
43. **Kalyanapu, A. J.**, McPherson, T., and Burian, S. (2008). "Effect of Manning's n estimation approaches on hydrologic model." AWRA Spring Specialty Conference, San Mateo, CA.
44. Judi, D., **Kalyanapu, A. J.**, McPherson, T., and Burian, S. (2008). "Use of GIS visualization and Google Earth mapping service to aid flood hazard impact decision making." AWRA Spring Specialty Conference, San Mateo, CA.
45. Judi, D., **Kalyanapu, A. J.**, McPherson, T., and Burian, S. (2008). "Impacts of Channel Morphology Data Automation on Wide-Area Flood Inundation" 36th Annual AWRA Utah Section Water Resources Conference, Salt Lake City, UT.
46. **Kalyanapu, A. J.**, Burian, S. J., and McPherson, T. N. (2007). "GIS-Based 1-d diffusive wave overland flow model." World Environmental and Water Resources Congress 2007: Restoring Our Natural Habitat, May 15-19, Tampa, FL, ASCE. DOI: [http://dx.doi.org/10.1061/40927\(243\)298](http://dx.doi.org/10.1061/40927(243)298).
47. **Kalyanapu, A. J.**, Judi, D., Burian, S. J., Berscheid, A., Hodge, B., and McPherson, T. N. (2007). "Channel Morphology Tool (CMT): A GIS-based Automated Extraction Model for Channel Geometry." World Environmental and Water Resources Congress 2007: Restoring Our Natural Habitat, May 15-19, Tampa, FL, ASCE. DOI: [http://dx.doi.org/10.1061/40927\(243\)96](http://dx.doi.org/10.1061/40927(243)96).
48. Burian, S.J., Jung, J.-S. Jensen, M., **Kalyanapu, A. J.**, Hooshalsadat, P., and Han, W. (2007). Development of new precipitation depth, duration, frequency maps for the state of Arkansas. Final Report submitted to the University of Arkansas.
49. Judi, D., **Kalyanapu, A. J.**, Burian, S. J., Linger, S., Berscheid, A., and McPherson, T. N. (2007). "GIS-Based Prediction of Hurricane Flood Inundation" World Environmental and Water Resources Congress 2007: Restoring Our Natural Habitat, May 15-19, Tampa, FL, ASCE. DOI: [http://dx.doi.org/10.1061/40927\(243\)92](http://dx.doi.org/10.1061/40927(243)92).
50. **Kalyanapu, A. J.** (2005). "Flood Inundation Assessment Tool using GIS", Poster Presentation, ESRI 25th Users Conference, San Diego.