**ICWRER Special Session Proposal**

**2022 International Conference on Water Resources and Environment Research (ICWRER)**

**Special Session Title**

***Next Generation Hydroinformatics Applications in Water Resources Research and Education***

**Session Organizers**

**Chair**

Ibrahim Demir, PhD, ibrahim-demir@uiowa.edu

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**Co-Chair**

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**Session Description**

Hydroinformatics applications changed significantly in recent years with the developments in information and communication technologies. It has been offering novel approaches for resources challenges to support integration of big data, systems science, and computational intelligence. The goal of this session is to highlight recent developments in this domain and provide an active forum to discuss novel ideas and technologies to support hydrological research and education on (a) IoT and smart water system for monitoring, (b) data driven models based on computational intelligence and machine learning, (c) scientific computing and visual data analytics, (d) participatory decision support via serious gaming, and (e) visualization and communication applications using artificial intelligence, virtual and augmented reality.

**Speakers:**

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| **Invited Speakers** | **Affiliation** | **Presentation Title** |
| Ibrahim Demir1 & Stefano Galelli2 | 1 Associate Professor, Univ. of Iowa,  [ibrahim-demir@uiowa.edu](mailto:ibrahim-demir@uiowa.edu)  2 Associate Professor, Singapore Univ. of Technology and Design  [stefano\_galelli@sutd.edu.sg](mailto:stefano_galelli@sutd.edu.sg) | Session Introduction: Next Generation Hydroinformatics Applications in Water Resources Research and Education |
| Chaopeng Shen | Associate Professor, Pennsylvania State University  [cshen@engr.psu.edu](mailto:cshen@engr.psu.edu) | How to beat your teachers: Toward the next-generation machine learning approaches in hydrology |
| Jonathan L. Goodall | Professor, University of Virginia  [jlg7h@virginia.edu](mailto:jlg7h@virginia.edu) | Street-scale flood forecasting combining physics-based simulation, machine learning, and crowdsourced data collection |
| Dan Ames | Professor, Brigham Young University  [dan.ames@byu.edu](mailto:dan.ames@byu.edu) | Tethys Platform: A Python-Django Web Application Environment for Building and Sharing Computationally Intense Water Resources Web Apps |
| Scott D. Peckham | Research Scientist, Univ. of Colorado in Boulder  [scott.peckham@colorado.edu](mailto:scott.peckham@colorado.edu) | The Scientific Variables Ontology and How it Simplifies the Coupling of Heterogeneous Models and Data Sets |