

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Civil and Environmental Engineering

Valeriy Y. Ivanov, associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering, is recommended for promotion to professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.

Academic Degrees:

Ph.D. 2006 Massachusetts Institute of Technology, Hydrology, Cambridge, MA
M.S. 2002 Massachusetts Institute of Technology, Hydrology, Cambridge, MA
Diploma 1996 Moscow State University, Hydrology, Moscow Russia

Professional Record:

2013-present Associate Professor (with tenure), Department of Civil and Environmental Engineering, University of Michigan
2007-2013 Assistant Professor, Department of Civil and Environmental Engineering, University of Michigan
2006-2007 Post-doctoral Fellow, Center for the Environment, Harvard University
2006-2006 Post-doctoral Associate, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology

Summary of Evaluation:

Teaching: Professor Ivanov has taught five different classes, three of which he introduced. He has been instrumental in ensuring that both the undergraduate and graduate curriculum of the Civil and Environmental Engineering (CEE) Department includes a rigorous discussion of cutting-edge topics in hydraulics and hydrology. Professor Ivanov clearly challenges himself as well as his students by putting forward substantial effort in developing course materials, as well as extensively engaging students outside of class to ensure that all can grasp and apply the concepts discussed in his classes. His teaching was uniformly praised by both graduate and undergraduate students. His teaching efforts were recognized with a 2014 Excellence in Teaching Award from the Great Lakes District of Chi Epsilon, the Civil Engineering Honor Society.

Professor Ivanov is an effective mentor and advisor with many of his students receiving prestigious awards for their research. Since 2007, he has graduated five Ph.D. students at Michigan (one as co-chair) and two as a co-chair at European universities. He has three current Ph.D. students, with one expected to graduate in 2020. Further, he has advised 15 M.S. students and 14 undergraduate students on various research projects.

Research: Professor Ivanov is internationally recognized in the areas of ecohydrology, hydrology, and geomorphology. His work largely focuses on testing and application of distributed hydrologic models. Specifically, this includes (1) downscaling of information from

general circulation models to assess hydrologic change associated with anticipated climate change and (2) understanding the underlying processes and feedbacks in coupled vegetation-hydrology systems. Such efforts are critical to plan and adapt to climate change, and to predict and manage vegetation changes in response to altered precipitation patterns. Professor Ivanov has published over 60 refereed papers, and over 100 refereed conference abstracts. His work has been extensively cited, and he has had several of his papers selected for special attention by multiple journals. He has been the PI or co-PI on over \$5.7M in grants funded by competitive public and private U.S. funding groups (e.g., NSF, NASA, DOE, Google) as well as foreign agencies in Brazil and Russia. External reviewers were enthusiastic in their evaluation of Professor Ivanov's research quality and quantity.

Recent and Significant Publications:

- Dwelle, M.C., J. Kim, K. Sargsyan, and V.Y. Ivanov (2019), "Streamflow, stomata, and soil pits: sources of inference for complex models with fast, robust uncertainty quantification," *Advances in Water Resources*, 125, 13-31.
- Xu, D., E. Agee, J. Wang, and V.Y. Ivanov (2019), "Estimation of evapotranspiration of Amazon rainforest using the Maximum Entropy Production method," *Geophysical Research Letters*, 46(3), 1402-1412.
- Manoli, G., V.Y. Ivanov, and S. Fatichi (2018), "Dry-season greening and water stress in Amazonia: The role of modeling leaf phenology," *Journal of Geophysical Research: Biogeosciences*, 123(6), 1909-1926.
- Kim, J., V.Y. Ivanov, and S. Fatichi (2016), "Environmental stochasticity controls soil erosion variability," *Scientific Reports*, 6: 22065.
- Kim, J., and V.Y. Ivanov (2015), "A holistic, multi-scale dynamic downscaling framework for climate impact assessments and challenges of addressing finer-scale watershed dynamics," *Journal of Hydrology*, 522 (2015) 645–660.
- Fatichi, S., and V.Y. Ivanov (2014), "Interannual variability of evapotranspiration and vegetation productivity," *Water Resources Research*, 50, 3275–3294.

Service: Professor Ivanov has provided significant leadership both internally and externally. He has served as the director of the Environmental and Water Resources Engineering Program, chair of the Departmental IT committee, as well as the chair of a recently successful hiring committee for a position in Coastal Resiliency. His external service is excellent, having served as a convener for 11 sessions at international conferences and as an editor of a top journal (*Geophysical Research Letters*) in his field since 2018, having been an associate editor since 2013.

External Reviewers:

Reviewer A: "Valeriy is a leading scientist in the fertile intersection of hydrology, ecology, and geomorphology. Very few are able to straddle these disciplines. It is more common for many scientists and engineers to be an expert in one aspect of eco-hydro-geomorphology. Prof. Ivanov is the rare engineer that is able to do so with research that exhibits a deep understanding and creativity without losing breadth and perspective. He is eminently recognized as a trailblazer in this field."

Reviewer B: "...I am impressed by his ability to lead the field and break new grounds at the intersection between hydrology and climate/microclimate dynamics."

Reviewer C: "...I am impressed with the scope of the research activities of Dr. Ivanov. His research topics range from development and applications of rainfall-runoff models to hydrologic forecasting to studies of the climate change impacts on ecosystems to experimental work in the tropics and the cold regions."

Reviewer D: "...Dr. Ivanov has provided important scientific insights and unique tools and datasets that enable not only his own research, but the research of many scientists in the community. His research is well recognized, as evidenced by his outstanding record in grant applications."

Reviewer E: "He is a recognized leader in the field of ecohydrology and interdisciplinary statistically-based hydrology, with a sustained record of teaching, publications, funding, and successful students."

Reviewer F: "He stands out among his peer-group and I am highly confident he would be granted promotion to Full Professor at my institution and therefore enthusiastically support his promotion case."

Summary of Recommendation: Professor Ivanov's work is widely considered to have provided many milestones to the scientific community. He is also an excellent teacher and mentor and has provided outstanding leadership both internally and externally. It is with the support of the College of Engineering Executive Committee that I recommend Valeriy Y. Ivanov for promotion to professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.



Alec D. Gallimore, Ph.D.
Robert J. Vlasic Dean of Engineering
College of Engineering

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