

EGU21-16249, updated on 16 Oct 2021

<https://doi.org/10.5194/egusphere-egu21-16249>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



An ensemble of deep learning models with data assimilation for hydrologic forecasting

Seong Jin Noh, Hyeonjin Choi, and Bomi Kim

Kumoh National Institute of Technology, Department of Civil Engineering, Gumi-si, Korea, Republic of
(seongjin.noh@gmail.com)

We present an approach to combine two data-centric approaches, data assimilation (DA) and deep learning (DL), from the perspective of hydrologic forecasting. DA is a statistical approach based on Bayesian filtering to produce optimal states and/or parameters of a dynamic model using observations. By extracting information from both model and observational data, DA improves not only the performance of numerical modeling, but also understanding of uncertainties in predictions. While DA complements information gaps in model and observational data, DL constructs a new modeling system by extracting and abstracting information solely from data without relying on the conventional knowledge of hydrologic systems. In a new approach, an ensemble of deep learning models can be updated by real-time data assimilation when a new observation becomes available. In the presentation, we will focus on discussing the potentials of combining two data-centric approaches.