Docket #: S22-051

CCSNet web app: a deep learning modeling suite for CO_2 storage

Stanford researchers in the Benson Lab have developed CCSNet, an open source software platform for modeling CO_2 storage reservoirs based on machine learning neural networks. As compared to current standards, this software is 10,000 to 100,000 times faster and more accurate.

Traditional simulators for carbon geological storage are computationally expensive and time consuming. Trained with a large numerical simulation data set, CCSNet provides numerous outputs for carbon dioxide storage projects including but not limited to CO_2 gas saturation, pressure buildup, and mass balance.

Stage of Development

- Pre-clinical

Figure:

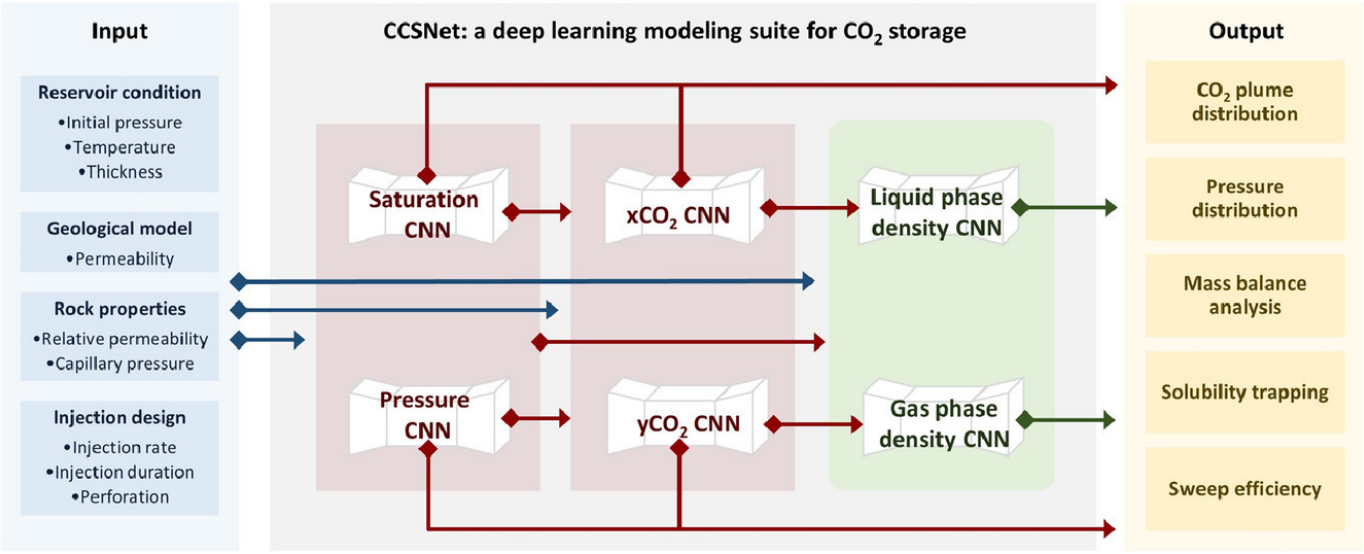


Figure description: Graphical Abstract

Image credit: https://doi.org/10.1016/j.advwatres.2021.104009

Applications

- Numerical simulation for carbon storage

Advantages

- **Instant and accurate predictions -** 10,000 to 100,000 times faster compared to competitive top tier numerical simulations
- **2D version is open source. License available for 3D and webcode.**

Publications

- Wen, G., Tang, M., & Benson, S. M. (2021).Towards a predictor for CO2 plume migration using deep neural networks. *International Journal of Greenhouse Gas Control, 105,* 103223.

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