Prof. R. Wattenhofer

Using PINNs to predict rail irregularities

Physics informed neural networks, PINNs, uses domain knowledge about a physical system to improve the predictions from a model. This is done by penalising the predictions from a model if they do not conform with the physical system from which the data arises.

Railway vehicles' dynamics can be used to predict the rail irregularities and thus be used to monitor the conditions of the rails in real time using in-service railway vehicles.

This project will use simulated data of railway vehicles driving on real tracks to train a PINN to predict the rail irregularities.

Requirements:

Prior experience and a strong interest in machine learning is recommended. Creativity and experience with programming in Julia are advantageous.

Interested? Please contact us for more details!

Contact

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