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Surrogate Model Development for a Photoinjector

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Online models are becoming increasingly more important for the tuning of particle accelerators. Photoinjectors are especially notorious due to there sometimes finicky nature and the difficulties involved in developing models that are suitable for online use. Surrogate models using artificial neural networks are increasingly popular for this application due to their ability to model nonlinear behavior and their execution speed. In support of photo-injector commissioning we have developed a neural network surrogate model and an associated GUI to deploy this model during operations. Here we present our results on the simulations, surrogate model development, and GUI deployment.

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Footnotes

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Yes

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