

# Differentiable programming for fundamental physics research: status and perspectives

*Tuesday 28 September 2021 10:00 (50 minutes)*

Take the chain rule of differential calculus, model your system with continuous functions, add overparametrization and an effective way to navigate stochastically through the parameter space in search of an extremum of an utility function, and you have all it takes to find an optimal solution to even the hardest optimization problem. Deep learning, nowadays “differentiable programming”, is boosting our reach to previously intractable problems.

I will look at the status of applications of differentiable programming in research in particle physics and related areas, and make a few observations of where we are heading.

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