Contents

0.1 Functionals

Functionals map functions to scalars. They are the 1-forms of infinite-dimensional vector spaces.

If we have a function f, we can write functional $J[f]$.

0.1.1 More

We can define neighbourhoods around a function f. For example, taking y to be f with infintesimal changes. to each of the values.

The difference between the functional at both points is

$\delta J = J[y] - J[f]$

0.1.2 Extrema

If

$\delta J = J[y] - J[f]$

is the same sign for all y around f, then J has an extremum at f.

0.1.3 Functional derivatives