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*The Fundamental Theorem of Geometric Calculus*

**Summary**

Geometric calculus is the extension of geometric algebra to calculus: derivatives and integrals. Its crown jewel is the fundamental theorem of geometric calculus. The theorem unifies and generalizes the fundamental theorem of scalar calculus, Gauss' and Stokes' theorems from vector calculus, Stokes' theorem from differential forms theory, and Cauchy's theorem from complex variable theory, among others. The statement of the theorem is simple and elegant.

The lecture will introduce the key concepts necessary to formulate the theorem: manifold, vector derivative, and directed integral. Then the theorem will be presented, followed by several of its corollaries.