PDEs And
Differen-
tial
Geometry

Jake
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With
Support of
Professor
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Abstract

References

The Intersection of Partial Differential Equations and Differential Geometry

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Differential Geometry is a mathematical discipline that uses the techniques of
differential calculus, integral calculus, linear algebra and multilinear algebra to study
problems in geometry. Partial Differential Equations describes the behavior of
functions that operate under multiple variables. One of the main roles of Differential
Geometry is describe the mathematics that can act upon surfaces with curvature.
This inherently lends itself to the use of PDEs. The crossover of Differential
Geometry and PDEs provides many powerful mathematical outcomes. I seek to
explore this overlap and show the intrinsic capabilities of combining these two types of
powerful mathematics in meaningful ways.

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I will be relying heavily on
Comprehensive Introduction to Differential Geometry Volumes 1-5 by Michael Spivak