CAS 741: Problem Statement
Scientific Data Processing

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Table 1: Revision History

Date	Developer(s)	Change
Sep 15, 2018	Malavika Srinivasan	Problem statement creation
Sep 17, 2018	Spencer Smith	Corrections in problem statement
Sep 18, 2018	Malavika Srinivasan	Changes made in problem statement for corrections mentioned on Sep 17, 2018.
Sep 19, 2018	Spencer Smith	Changes suggested on Sep 19, 2018.
Sep 24, 2018	Malavika Srinivasan	Changes made for corrections on Sep 19, 2018.

Scientific Computation (SC) is the collection of tools, techniques, and theories that are required to solve problems in the field of science and engineering using computer-based mathematical models. The source data for scientific computation problems are often large sets of data from experiments conducted in a laboratory setup. This large set of data (such as time and temperature) is usually complex to analyze and require segmenting and curve-fitting.

The purpose of this software family is to develop a general purpose library for fitting the experimental data using a 1D function to enable simpler data processing. In other words, the software is intended to be used as a tool to fit the data and compute derivatives. In this software, regression and interpolation are the two techniques used for data fitting.

Interested stakeholders in this project may include researchers in industrial and academic set-up, students, technicians and those who deal with processing of a large set of data to obtain critical information within a dataset. The processing encoded into the current software will be suitable for any scientific application which will require scientific data processing like obtaining a fit for the data, interpolating across the domain and computing derivatives. This software can be run on a variety of personal desktop and laptop computers using Linux, Windows, or MacOS.