User's Guide for LIFE2's
Rainflow Counting Algorithm

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ABSTRACT

The LIFE2 computer code is a fatigue/fracture code for the analysis of wind turbine components. The numerical formulation of the code uses a series of cycle count matrices to describe the cyclic stress states imposed upon the component. In this formulation, each stress cycle is counted, or " binsed," according to the magnitude of its mean stress and cyclic stress components and by the operating condition of the turbine. This paper describes a set of numerical algorithms that have been incorporated into the LIFE2 code. These algorithms determine the cycle count matrices for a turbine component using stress-time histories of the imposed stress states. A user's manual is included that explains the operation of these algorithms. An example session illustrates the use of these algorithms.