

# Probabilistic Progressive Fracture for System Reliability of Large-scale Structural Systems

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A. **Goals:** To develop a new system reliability method that utilizes Structural Health Monitoring (SHM) information to make near real-time predictions of structural reliability, prognoses inspection and repair requirements of large-scale structural systems.

B. **Brief Description:** Compute reliability of large-scale structures subject to progressive crack growth. Identify critical crack locations given SHM information and determine critical crack paths.

A. **Heights of Achievements** this semester:

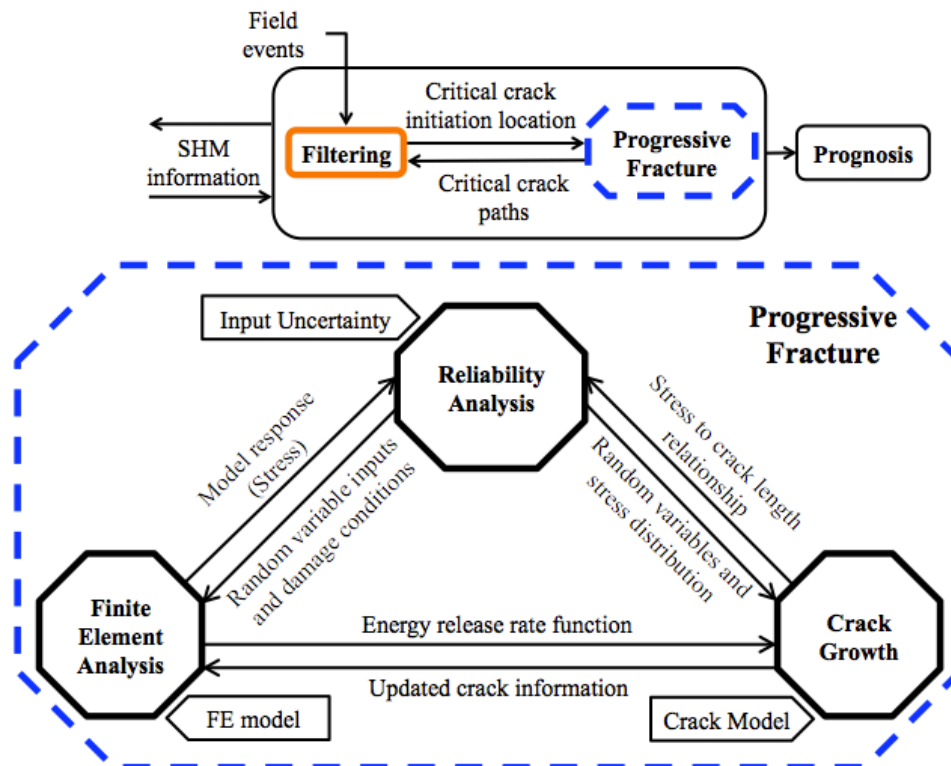
- Investigate methods to predict critical failure sequences of a structure such as branch-and-bound and B<sup>3</sup> method.

B. **Problems/Concerns** that prevent your progress:

- None as of right now

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Probabilistic progressive fracture flow-chart