

---

**NICOLAS FILLION**, Simon Fraser University

*A philosophical take on variational crimes in the finite element method*

Despite being one of the most dependable methods used by applied mathematicians and engineers in handling complex systems, the finite element method commits variational crimes. This paper contextualizes the concept of variational crime within a broader account of mathematical practice by explaining the tradeoff between complexity and accuracy involved in the construction of numerical methods. We articulate two standards of accuracy used to determine whether inexact solutions are good enough and show that, despite violating the justificatory principles of one, the finite element nevertheless succeeds in obtaining its legitimacy from the other.