The Role and Handling of State in Software Engineering

Topic Proposal
17-939: What Makes Good Research In Software Engineering
Kevin Bierhoff

The idea of states and transitions got heavily used in specification and analysis

Statecharts are a specification technique that was proposed early on

Statecharts: A Visual Formalism for Complex Systems
(D. Harel, 1986)

- Reactive systems are hard to specify
  - Existing methods focus on transformation systems
- Statecharts proposed as (“revolutionary”) new specification method
  - Events, conditions, and actions major building blocks
  - Broadcasting mechanism for communication
  - Graphical representation and hierarchical decomposition facilitate understanding
- Validation by example: Complete modeling of the author’s wrist watch

They became widely successful and part of UML