# Abbreviations

| | |
|---|---|
| **ANSI** | American National Standards Institute |
| **BFV** | Bypass Feedwater Valve |
| **CBS** | Computer Based System |
| **CDG** | Component Dependency Graph |
| **CEG** | Cause Effect Graph |
| **CNET** | Centre National d'Etudes des Telecommunications |
| **COTS** | Commercial Off-The-Shelf |
| **CPN** | Colored Petri Net |
| **CST** | Condensate Storage Tank |
| **CTMC** | Continious Time Markov Chain |
| **DoD** | Department of Defense |
| **DFWCS** | Digital Feed Water Control System |
| **DSPN** | Deterministic and Stochastic Petri Net |
| **DTMC** | Discrete Time Markov Chain |
| **ETA** | Event Tree Analysis |
| **ESPN** | Extended Stochastic Petri Net |
| **FP** | Feedwater Pump |
| **FT** | Fault Tree |
| **FMEA** | Failure Mode Effects Analysis |
| **FMECA** | Failure Mode Effects and Criticality Analysis |
| **GSPN** | General Stochastic Petri Net |
| **HAZOP** | Hazard and Operability Study |

| | |
|---|---|
| **HPAM** | High Power Automatic Mode |
| **I&C** | Instrumentation and Control |
| **IEC** | International Electrotechnical Commission |
| **ISA** | International Society of Automation |
| **LPAM** | Low Power Automatic Mode |
| **LTM** | Lower Term Mode |
| **MC** | Markov Chain |
| **MFV** | Main Feedwater Valve |
| **MIL-STD** | Military Standard |
| **MSS** | Multi State System |
| **NPP** | Nuclear Power Plant |
| **NPR** | NASA Procedural Requirements |
| **OCL** | Object Constraint Language |
| **PFD** | Probability Failure on Demand |
| **PHA** | Probablistic Hazard Assessment |
| **PWR** | Pressurized Water Reactor |
| **RCICS** | Reactor Core Isolation Cooling System |
| **RCICP** | Reactor Core Isolation Cooling Pump |
| **RCICT** | Reactor Core Isolation Cooling Turbine |
| **RP** | Recirculation Pump |
| **RPV** | Reactor Pressure Vessel |
| **RTWV** | Reconfigurable Triplication With Voter |
| **RV** | Recirculation Valve |
| **SAE** | Society of Automotive Engineers |
| **SCCS** | Safety Critical and Control System |
| **SCS** | Safety Critical System |
| **SCSDLC** | Safety Critical System Devlopment Life Cycle |
| **SDLC** | Software Devlopment Life Cycle |
| **SG** | Steam Generator |

| | |
|---|---|
| **SIL** | Safety Integrity Level |
| **SP** | Suppression Pool |
| **SPN** | Stochastic Petri Net |
| **SRGM** | Software Reliability Growth Model |
| **SRSE** | System Reliability and Safety Engineering |
| **STM** | Short Term Mode |
| **UML** | Unified Modeling Language |
| **USCD** | Uml State Chart Diagram |
| **WSPN** | Weighed Stochastic Petri Net |

# Symbols

| | |
|---|---|
| $R(t)$ | Reliability Function |
| $h(t)$ | Hazard Rate |
| $\lambda$ | Failure Rate |
| $\sum$ | Set of Input Symbol |
| $Q$ | Set of States |
| $q_0$ | Starting State |
| $P_{i,j}$ | Probablity of transition between state i and j. |
| $\lambda_{i,j}$ | failure raye of transition between state i and j. |
| $\mathbb{K}$ | key feature vector (iris) |
| $\Omega$ | State space |