

Technique: <i>basics</i>	■ Pros	Subtypes
	■ Cons	
A) Statistical-based: <i>stochastic behaviour</i>	<ul style="list-style-type: none"> <li>■ Prior knowledge about normal activity not required. Accurate notification of malicious activities.</li> <li>■ Susceptible to be trained by attackers. Difficult setting for parameters and metrics. Unrealistic quasi-stationary process assumption.</li> </ul>	A.1) Univariate models ( <i>independent Gaussian random variables</i> )  A.2) Multivariate models ( <i>correlations among several metrics</i> ) A.3) Time series ( <i>interval timers, counters and some other time-related metrics</i> )
B) Knowledge-based: <i>availability of prior knowledge/data</i>	<ul style="list-style-type: none"> <li>■ Robustness. Flexibility and scalability.</li> <li>■ Difficult and time-consuming availability for high-quality knowledge/data.</li> </ul>	B.1) Finite state machines ( <i>states and transitions</i> ) B.2) Description languages ( <i>N-grams, UML, ...</i> ) B.3) Expert systems ( <i>rules-based classification</i> )
C) Machine learning-based: <i>categorization of patterns</i>	<ul style="list-style-type: none"> <li>■ Flexibility and adaptability. Capture of interdependencies.</li> <li>■ High dependency on the assumption about the behaviour accepted for the system. High resource consuming.</li> </ul>	C.1) Bayesian networks ( <i>probabilistic relationships among variables</i> )  C.2) Markov models ( <i>stochastic Markov theory</i> ) C.3) Neural networks ( <i>human brain foundations</i> ) C.4) Fuzzy logic ( <i>approximation and uncertainty</i> ) C.5) Genetic algorithms ( <i>evolutionary biology inspired</i> ) C.6) Clustering and outlier detection ( <i>data grouping</i> )