

# Human Visual Inspection

## Literature review reports 20% Error Rate<sup>1</sup>

*Lessons learned from past research. Visual inspection is commonly used in both manufacturing tasks and nonproduction environments. In manufacturing tasks, the purpose is to verify that a product is free of defects before installation in the next level of assembly or final distribution to the customer. In non-production environments, the objective is to determine whether the features indicative of a “target” are present and prevent potential negative impacts. **Many fields in which visual inspection is used are considered high consequence due to the potentially high costs of inspection errors**—injury, fatality, loss of expensive equipment, scrapped items, rework, or failure to procure repeat business. **Such high-consequence fields include** nuclear weapons, nuclear power, airport baggage screening, aircraft maintenance, **food industry**, and medicine. Visual inspection has been extensively researched since the early 20th century to understand the factors that impact performance (See, 2012; See, 2015). The most frequent and consistent observation is the imperfection of human inspectors. The minimum error rate of  $10^{-3}$  applies primarily to very simple accept/reject inspection tasks (Swain & Guttman, 1983). **Most inspection tasks are much more complex and typically exhibit error rates of 20% to 30%** (Drury & Fox, 1975). Inspection errors may occur for many reasons, but can be traced to task, environmental, individual, organizational, and social factors*

The Role of Visual Inspection in the 21st Century, Judi E. See , Sandia National Laboratories. <http://journals.sagepub.com/doi/pdf/10.1177/1541931213601548>



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