**About the Killer Robot Papers**

This online archive contains the Killer Robot Papers consisting of seven newspaper articles, one journal article and one Sunday newspaper magazine interview. The Case of the Killer Robot book, published by John Wiley & Sons (Epstein 1997), contains a lot more material. The persons and institutions involved in this scenario are entirely fictitious (except for the references to the venerable computer scientists: Ben Shneiderman and Jim Foley). Silicon Valley was chosen as the location for the accident because Silicon Valley is an icon of high technology. All of the persons, business entities and institutions named in Silicon Valley are purely fictitious. Silicon Valley University is purely fictitious and has nothing to do with any actual university in Silicon Valley or elsewhere. It is just a fictitious device.

**The Killer Robot Cast of Characters**

**Alex Allendale**, Attorney, hired to defend Randy Samuels.

**Jan Anderson**, Former Programmer-Analyst at Silicon Techtronics. She opposed the use of the waterfall model on the robot project and was fired for her honesty.

**Turina Babbage**, President of the Association for Computing Machinery (ACM). She announces an investigation by the ACM into violations of the ACM Code of Ethics by employees at Silicon

Techtronics.

**Robert Franklin**, Reporter for the Silicon-Valley Sentinel Observer. He interviewed Professor Harry Yoder in order to see how an ethicist would view the developments in the killer robot case. The interview was published in the Sentinel-Observer's Sunday magazine.

**Horace Gritty**, Professor of Computer Science and Related Concerns at Silicon Valley University. He sees poor interface design as a primary cause of the killer robot tragedy.

**Sandra Henderson**, Graduate Student at Silicon Valley University. She assisted in the investigation into quality assurance procedures at Silicon Valley University.

**Ray Johnson**, Robotics Division Chief at Silicon Techtronics. The Robotics Division needed a successful robot.

**Martha (Max Worthington**), Anonymous newspaper source. She is the insider at Silicon Techtronics who gave the Silicon Valley Sentinel-Observer information about the group dynamics on the Robbie CX30 robot project.

**Bart Matthews**, Robot Operator. A faulty computer program caused a Robbie CX30 robot to strike him dead.

**Roberta Matthews**, Widow of Bart Matthews.

**Jane McMurdock**, Prosecuting Attorney for the City of Silicon Valley. She brought the manslaughter charges against Randy Samuels.

**Mabel Muckraker**, Reporter for the Silicon Valley Sentinel-Observer. She was put on the killer robot story because of her reputation as an effective investigative reporter.

**Bill Park**, Professor of Physics at Silicon Valley University. He confirmed that Randy Samuels misinterpreted the robot dynamics equations.

**Randy Samuels**, Programmer. He wrote the program code that caused the Robbie CX30 robot to oscillate wildly, killing the robot operator, Bart Matthews.

**Sam Reynolds**, CX30 Project Manager. Ray Johnson was his immediate boss. His background was in data processing, but he was put in charge of the Robbie CX30 project, much to Ray Johnson's chagrin.

He was committed to the waterfall model of software development.

**Robbie CX30**, The Robot. Robbie never had an unkind thought about anyone, yet he turned into a savage killer.

**Wesley Silber**, Professor of Software Engineering at Silicon Valley University. He conducted a review of software quality assurance procedures at Silicon Techtronics.

**Sharon Skinner**, Professor of Software Psychology at Silicon Valley University. She saw Randy Samuels as a task-oriented person who was overly sensitive about criticism.

**Valerie Thomas**, Attorney, hired by Sam Reynolds.

**Michael Waterson**, President and CEO of Silicon Techtronics. Placed Sam Reynolds in charge of Robbie CX30 project as a cost-saving measure. He contributed generously to Jane McMurdock's re- election campaign. He hired Dr. Silber to investigate software quality assurance at Silicon Techtronics.

**Ruth Witherspoon**, Programmer-Analyst and spokesperson for the "Justice for Randy Samuels" committee. She defends Randy Samuels on the grounds that Silicon Techtronics was legally obligated to deliver a safe robot.

**Max Worthington**, Chief Security Officer for Silicon Techtronics. He monitored electronic mail communications among the employees and thus exposed Cindy Yardley.

**Cindy Yardley**, Silicon Techtronics employee and software tester. She admitted to faking software tests in order to save the jobs of her co-workers.

**Harry Yoder**, Samuel Southerland Professor of Computer Technology and Ethics. He examines the tension between individual and corporate responsibilities in an interview published by the Sentinel- Observer's Sunday magazine.

# Major Issues

1. Enormous amount of friction between the Robotics division Chief Ray Johnson and the Robbie CX30 project manager Sam Reynolds. Since both of them are the major advisors/supervisors for the project, it is the team and the project that suffers due to their friction.

* Professional, Personal -> Social

1. Johnson told Reynolds to finish the projects by January otherwise "heads will roll."

* Ethical

1. Adding 20 new programmers to the project by Ray Johnson, the head of the Robotics Division which was of no help even at the end of the project as they spent 6 months reading the manual. Even though Johnson's specialty was in hardware, he ended up hiring 20 new programmers. The robot CX30 was having with the software part so he should've consulted Sam before directly hiring the new developers. He should've understand that hardware and software are two different essential components.

* Professional

1. Sam Reynolds stating the Ivory Snow Theory i.e. "Perfect software is an oxymoron." This however will not be true for all types of software.

* Professional

1. Failure of Johnson to understand the sophistic nature of CX30 and the revolutionary impact of CX30 if successful.

* Professional

1. Failure of Randy Samuels to accept criticism about his code and himself. He took everything personally.

* **Professional**, Social

1. Arrogance and lack of patience of Randy Samuels which can be observed from the banner in his wall which said "YOU GIVE ME THE SPECIFICATION AND I'LL GIVE YOU THE COMPUTATION."

* Professional, Social

1. Randy Samuel hating meetings which is very bad while working in a team.

* Professional, Social, **Personal**

1. The software development model chosen by the project manager Sam Reynolds pointed by Jan Anderson who was against the waterfall model because this project would involve high amount of interaction between the robot and the robot operator.

* Personal, **Social**

1. Moving Sam Reynolds from Data Processing Division to Robotics Division by Silicon Techtronics president Michael Waterson. Sam Reynolds had 3 decades of experience in data processing but not in robotics. Moreover, this decision was purely cost-saving decision.

* Ethical

1. Failure of Reynolds to be aware of his own technical limitations.

* **Personal**, Professional

1. Reynolds was unwilling to manage a project that did not use the waterfall model for software development. The waterfall model is not a universal model meaning that it is applicable in all sorts of projects

* **Personal**, Professional

1. Sam Reynolds considering anything new as a "fad". One should respect the creativity of others and should be open to ideas of other team mates. Since Jan Anderson was an expert in UI, Sam Reynolds should've at least considered her ideas.

* Professional, Personal -> Social

1. The requirements document made it clear stating that the robot operator should be provided 40 hours of training which included all aspects of robot operation but the robot operators at Cybernetics, Inc stated that only 8 hours of training was provided by Silicon Techtronics.

* Ethical

1. Testing phase of the Robot CX30 was not emphasized as per the requirements document by Silicon Techtronics.

* **Legal**, Ethical

1. The UI Interface of the Robot CX30 which killed the robot operator violated all the 8 golden rules of Schneiderman which should be familiar to a computer interface expert. So even though Randy Samuels program caused the robot to behave unpredictably, a good user interface would have brought the robot to halt avoiding the accident.

* Ethical

1. The results obtained during the testing phase at Silicon Techtronics was different from the results obtained from the actual killer robot code. So the code might not have been properly tested or might even have been faked.

* Ethical , Legal -> Professional

1. Employees were not told that electronic surveillance was taking place.

* **Legal**

1. Ray Johnson's request to fake the test results for Randy Samuel's code.

* **Legal**, Ethical

1. Private email between Ray Johnson and Cindy Yardley was released publicly to the press.

* Ethical, **Legal**

1. Ray Johnson told Cindy Yardley that the robot was perfectly safe.

* **Ethical**, Professional

1. Randy Samuel used copyright material code in his code.

* **Legal**

- Randy Samuels is blamed by everyone without any legit proofs that he was directly involved in the killing of Bart Matthews

- The professor recognizes Randy Samuel’s misinterpretation as an accident, yet he still accuses of being guilty

- Despite having extra 20 members, Sam Reynolds did not put them to even basic tasks that did not require further knowledge of the Robot’s ecosystem

-Sam’s personality could have potentially reflected on the entire project team.

**ARTICLE-1**

1) Randy Samuels mistook y-dots in the formula as y-bars, and made the same mistake for x-axis and z-axis.

2) The company, Silicon Tech, was young and very ambitious

**ARTICLE-2**

3) Ray Johnsons threatened the employees under him that their “heads would roll” if they didn’t manage to meet the deadline.

4) Johnson hired new recruits and messed around with the resources of other projects to get more work force without consulting his team.

5) Ray introduces the “Ivory Snow” theory in order to justify sloppy workmanship and cutting corners.

**ARTICLE-3**

6) Randy Samuels was too arrogant and rarely accepted and corrected his own mistakes.

7) Randy was difficult to communicate with.

**ARTICLE-4**

8) Waterfall model used

9) Project rushed, lax quality control

10) Many corners cut by the upper management

**ARTICLE-5**

11) Not enough information passed around

12) Training and testing phase were neglected

**ARTICLE-7**

13) Inconsistent test data

**ARTICLE-8**

14) Mass intrusion of privacy

15) Faked test reports

16) Distribution of private data

17) Misleading and pressuring work environment

18) Copyright violations

**ARTICLE-9**

19) Comparison to outdated methods