

The Case of the Killer Robot

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The Case of the Killer Robot consists of newspaper articles, a journal article, and a magazine interview. This scenario is intended to raise issues of computer ethics and software engineering.

The people and institutions involved in this scenario are entirely fictitious (except for references to Carnegie Mellon and Purdue universities and to the venerable computer scientists Ben Shneiderman and Jim Foley). Silicon Valley was chosen as the location for the accident because it is an icon of high technology. All of the persons and institutions named in Silicon Valley are purely fictitious.

Silicon Valley Programmer Indicted For Manslaughter: Program Error Caused Death by Robot

By Mabel Muckraker, Special to the Silicon Valley Sentinel-Observer, Silicon Valley, USA

Jane McMurdock, prosecuting attorney for the city of Silicon Valley, announced today the indictment of Randy Samuels on charges of manslaughter. Samuels was formerly employed as a programmer at Silicon Techtronics Inc., one of Silicon Valley's newest entries into the high-tech arena. The charge involves the death of Bart Matthews, who was killed last May by an assembly-line robot.

Matthews worked as a robot operator at Cybernetics Inc., in Silicon Heights. He was crushed to death when the robot he was operating malfunctioned and started to wave its "arm" violently. The robot arm struck Matthews, throwing him against a wall and crushing his skull. Matthews died almost instantly. The case has shocked and angered many in Silicon Valley. According to the indictment, Samuels wrote the particular piece of computer program responsible for the robot malfunction.

"There's a smoking gun!" McMurdock announced triumphantly at a press conference held in the Hall of Justice. "We have the handwritten formula, provided by the project physicist, which Samuels was supposed to program. But, he negligently misinterpreted the formula, leading to this gruesome death. Society must protect itself against programmers who make careless mistakes or else no one will be safe, least of all our families and our children."

The Sentinel-Observer has obtained a copy of the handwritten formula in question. There are actually three similar formulas, scrawled on a piece of yellow legal pad paper. Each formula describes the motion of the robot arm in one direction: east-west, north-south and up-down. The Sentinel-Observer showed the formulas to Bill Park, a professor of physics at Silicon Valley University. He confirmed that these equations could be used to describe the motion of a robot arm. The Sentinel-Observer then showed Park the program code, written by the accused in the C programming language. We asked Park, who is fluent in C and several other languages, whether the program code was correct for the given robot-arm formulas.

Park's response was immediate. He exclaimed, "By Jove! It looks like he misinterpreted the y-dots in the formulas as y-bars, and he made the same mistake for the x's and the z's. He was supposed to use the derivatives, but he took the averages instead. He's guilty as hell, if you ask me."

The Sentinel-Observer was unable to contact Samuels for comment. "He is deeply depressed about all this," his live-in girlfriend told us over the phone, "but Randy believes he will be acquitted when he gets a chance to tell his side of the story."

The Cast of Characters

Alex Allendale

Attorney, hired to defend Randy Samuels.

Jan Anderson

Former programmer and 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 an investigation into quality assurance procedures at Silicon Techtronics.

Ray Johnson

Robotics division chief at Silicon Techtronics. He was driven by the division's need for a successful robot.

Martha

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. Although background was in data processing, 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 to criticism.

Valerie Thomas

Attorney, hired by Sam Reynolds

Michael Waterson

President and CEO of Silicon Techtronics. He placed Sam Reynolds in charge of the Robbie CX30 project as a cost-saving measure. He contributed generously to Jane McMurdock's re-election campaign, and hired Dr. Wesley Silber to conduct an investigation into software quality assurance at Silicon Techtronics.

Max Worthington

Chief security officer for Silicon Techtronics. He monitored electronic mail communications among the employees and thus exposed Cindy Yardley.

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.

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 at Silicon Valley University. He examines the tension between individual and corporate responsibilities in an interview published by the Sentinel-Observer's Sunday magazine.