



I, Robot — A Movie Whose Time Has Come

by Dr. Joanne Pransky

I felt the hairs on my arm raise as I watched *I, Robot*. (I wonder ... if my arm was electro-mechanically modified like Spooner's, would I still get goose bumps?) I have had two other arm "hair-raising" experiences in my life: when I met Isaac Asimov himself and when I met Honda's Asimo. (Seems there's an "Asimovian" fixation going on here.) I don't usually encounter these experiences in my everyday robotic psychiatrist's life, but they're worth the wait. In fact, the wait was nearly 20 years before the issues that I'd been thinking about became water cooler talk overnight — after the release of the film, *I, Robot*.

Back in the mid 1980s, I envisioned stores where people could buy clothes and accessories for their robotic assistants like they do now for their pets. I also thought — as funny as it sounds — that one day we'd pay for that extra seat on the airplane to have our robots sit next to us. We'd legally fight about their custody in a divorce suit. We'd write our wills to provide for our bots' necessary future maintenance and upgrades long after our own deaths. When our robots were depressed (and "we consider" is the operative here), we'd take them to a robotic psychiatrist for their weekly sessions.

In 1986, I dubbed myself the "World's First Robotic Psychiatrist" and the real "Susan Calvin." This wasn't exactly one of the top 10 growth careers or even a formal course of study back then. When asked what I did for a living, I responded with "robotics."

Most people thought I said aero-

bics and I'd field questions on the latest Jane Fonda and Richard Simmons videotapes. It's 18 years later and some folks (i.e., mainstream America) still think I mean "aerobics." They obviously have not seen *I, Robot*.

I have to admit — I wasn't expecting much from the movie. I figured it would be another stereotypical Hollywood action flick like *Terminator 3*. Using the draw of a big star like Will Smith and some good special effects, it would be nothing like Asimov's stories and nothing that enlightened me. Susan Calvin is being portrayed by Bridget Moynahan? Susan Calvin would be 53 years old in the year 2035 — a role more suitable for Kathy Bates or an older, anorexic Calista Flockhart.

However *I, Robot* was more than surprising. I thought it was awe-inspiring — a movie whose time has come. I also thought its robotic technology was outstanding.

From the time the first NS robot is shown as a FedEx deliverer (personally, I would have thought the USPS could benefit more from efficient, automated carriers, but would we, as taxpayers, pay the film licensing fees?), I recognized that these are the types of robotic assistants I have been touting for two decades.

These are personal robots that do the mundane, difficult, repetitive tasks and are useful to us in our everyday lives: robotic dog walkers, prep cooks, bartenders, sanitation workers, "shleppers" to carry our groceries and other personal items, nannies, and aides that retrieve our medicine when we forget it and administer it for us when we're sick. Here is a robot in every

home, one robot for every five people. Of course, this is nothing new for *SERVO Magazine* readers. Even in my home today, there's a ratio of five robots/human — if you include the defunct ones.

Asimov's Nestor series was two-legged. I've always thought that this form factor — despite the technical challenges of bipedal robots — would be best suited to accompany and work directly with us. I also felt the rest of the robotic embodiment was cleverly designed. The robots were easily discernible from humans, yet anthropomorphic enough to have features that humans are comfortable with: eyes, mouth, and facial expressions. The Nestor series physically represents what research has shown we want — a robot that looks like us, but not *too* much like us (the Uncanny Valley Theory).

Then there were several other robotic concepts — though based on existing service robot applications — that took us one more robo-evolutionary step into the future that we can look forward to: more robot artists (one of the first was Harold Cohen's "Aaron"), robots building and assembling 100% of the components of other robots, a robo-parking garage that rotates a car 180° before parking it, Survival Research Labs (SRL) making money by manufacturing demolition robots, robot fighting events that pit autonomous robots against other autonomous robots (and/or humans), and some team winning the DARPA Grand Challenge and having Audi purchase the technology.

I did question why there weren't

security robots instead of human police officers; even if a few were slightly 'RoboCop'-like in that they were cybernetically modified. Was it because it just didn't fit the whole storyline? Or is it that human cops are able to make better decisions than robots — such as in the case of the NS-4 who should have — but didn't — save the girl from drowning?

Was it a mere mathematical calculation of deciding to save Spooner because his chances of survival were 45% as compared to the 12-year-old girl's 11%? Should its decision be based upon the priority to save women and children first, regardless of the odds? Or was the robot faced with a decision of which life would be best saved for the benefit of other humans?

In other words, was the detective a higher priority to society than a young teen with mere aspirations and dreams and, therefore, was Spooner more useful in protecting other humans from harm?

These questions are just some of those raised by the interpretation of the famous Asimov's Three Laws — the *raison d'être* for this movie, as well as the stories in *I, Robot*. Though the movie did not emulate any specific story from the nine in the novel *I, Robot*, the credits at the end of the film clearly state that the film's storyline "was suggested" by the book, not based upon it.

The movie most closely resembled the 1947 story "Little Lost Robot," in which a Nestor (NS) robot is the villain. He was purposely constructed with a modified First Law, was berated, and told to "get lost," which it promptly did among the other 62 robots. In order to find the lost robot, Calvin and her team interview the robots and set up performance tests directly in response to the First Law.

"Little Lost Robot" and the other eight stories in the book address the analysis of the ingrained Three Laws. They also question whether there are circumstances under which a robot may need to lie. Under what acceptable conditions could a robot allow a human to come to harm? When might it be critical for a robot not to obey a human?

Though there was no Del Spooner in Asimov's stories, the detective's sen-

timents towards robots represent society's longstanding view — that of mistrust and dislike for robots. Asimov knew this would always be of great concern and, in "Little Lost Robot," he makes a reference to the "Frankenstein Complex." This was a term he coined to refer to the fear that machines will takeover and make us obsolete. This was reinforced by other science fiction writers — like Mary Shelley and Capek — as well.

The greater the autonomy and independence given to machines, the more frightening they are to humans, since a human's control decreases. Asimov knew the interrelationship of man (Spooner) and robot was not insignificant. Mankind may intellectually know about the Three Laws, yet humans will always fear and distrust robots.

Moynahan's portrayal of Dr. Susan Calvin was quite perceptive. She was colorless, serious, and stiff, but her passion, commitment, and compassion for robots was evident. Indeed, it was much deeper than her experiences with humans were. Regardless of her conservative clothing, her plain features, and asexual behavior, Moynahan was still physically appealing. She certainly did not resemble Asimov's gray-haired, unattractive Calvin. Perhaps Asimov purposely made Calvin this way, since he loved women so much and would find her to be a distraction if she were beautiful.

More precisely, if Calvin in the novel had been attractive, she may

have not been as dedicated to her work. She may have ended up married, with children of her own, or — at the very least — with some sort of social life (though it could also be argued that none of those would have transpired, since Calvin hated human beings).

It has also been written that Asimov based Calvin on Rear Admiral Grace Hopper — a brilliant scientist who received her doctorate in mathematics from Yale in 1934 and was later credited with inventing the compiler and coining the term "computer bug." Not only was it rare for a woman to have been so well educated during that era, but, also having excelled in an all-male profession truly made Hopper a pioneer.

For Asimov in 1940 to have chosen a woman to be the robopsychologist was quite a compliment to the gender. Regardless of whether he did so with Hopper in mind, he must have thought that a female would be the intuitive gender better suited to nurture, empathize with, and understand robots.

I think Asimov would have applauded the sensate and emotional Sonny. Was that name chosen because of the word "son" in it (referring to Lanning's son) or because Asimov's robot names were similar to their model names? Thus, the "SN" in Sonny becomes the reverse of the "NS" series for Nestor.

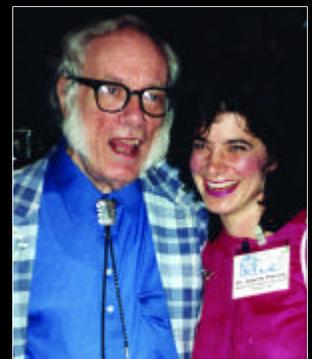
Sonny depicted the intelligent and complex robots Asimov wrote about in

Author Bio: She's the Real Susan Calvin!

Dubbed the "Real Susan Calvin" by Asimov himself in 1989, Dr. Joanne Pransky, the World's First Robotic Psychiatrist®, brings Calvin to life in a tongue-in-cheek way to prepare the public for a future when robot companions are a part of everyday life.

Pransky has been a marketing pioneer in the robotics industry for nearly 20 years. She was the senior sales and marketing executive for a major industrial robot manufacturer and is currently an associate editor for *Industrial Robot Journal*, Director of Marketing for the newly launched *International Journal of Medical Robotics + Computer Assisted Surgery* (www.roboticpublications.com), and a consultant sought out by service and personal robot companies.

Visit her on the Internet at www.robot.md



his essays in the late '70s and '80s. As a matter of fact, the scene in which Spooner questions Sonny on a robot's ability to create art and music is based on the following written words of Asimov: "Some people are sure to be disbelieving and say, 'But how can a computer possibly produce a great symphony, a great work of art, a great new scientific theory?' The retort I am usually tempted to make to this question is 'Can you?'"

VIKI (Virtual Interactive Kinematic Intelligence) symbolizes Asimov's addition of the Zeroth Law. In 1985, Asimov postulated that an advanced robot might consider the prevention of harm to humanity a higher priority than the prevention of harm to an individual. The Zeroth reads: "A robot may not injure humanity or, through inaction, allow humanity to come to harm, and thus the Modified First Law becomes: "A robot may not injure a human being or, through inaction, allow a human being to come to harm, except where that would conflict with the Zeroth Law." Asimov himself questioned what we as humans do to all other living things and the planet we live on. VIKI echoed his notion by trying to protect mankind from mankind.

The movie even goes further. It ponders some other Asimovian philosophical topics: nanotechnology — the symbiosis of man and machine, robopsychology (have I mentioned that already?), robotic law (e.g., Who will be responsible for a robot's behavior — if a dying human asks his robotic aide to end his pain and suffering, will this form of euthanasia be acceptable? What laws will dictate robots hurting humans, destroying property,

etc.), AI and machine consciousness, emotions, creativity, free will, and unanticipated behaviors in intelligent machines. These themes take *I, Robot* beyond the realm of science fiction.

Just recently, for example, Sony announced it's going to try to link Qrio (How is this pronounced? Might the public think it's "Queerio?" Now there's the name of a robot model type that makes them want to go out and buy one immediately!) to a grid of 250 computers so that it can make decisions on its own vs. responding to given instructions.

These social implications of robotics are brought to the masses by the movie *I, Robot*. The public (By the public, I am not referring to the erudite group of robo-enthusiasts — I'm referring to those that buy the tabloids at the supermarket. Like it or not, the tabloid articles typify the interests of middle America.) is now reading the book, *I, Robot*, with Will Smith on the cover and robots are table talk. iRobot — the Massachusetts-based company that manufactures consumer, military, and research robots — has received a deluge of calls asking for the NS5 robot. The public has learned that there are no NS5s yet (in case you, too, were wondering), but they did find out about real robots — the Roomba and the Packbot.

Whether I agree with others' impressions of the movie or not, I see it as an opportunity to create awareness and to bring further interest into the field. When I heard others discussing the movie and the doom and gloom of a potential robot revolution, I reminded them that that's what people thought in 1968 after seeing Hal in *2001, A Space Odyssey*.

Thirty-six years later, computers haven't murdered us. Actually, it's the humans (hackers) who can do the most damage (and this just may be what robotic psychiatry is truly about — the people who design and use robots — but that's a whole other story). I was hoping that after *I, Robot*, buffs would go into their garages that night and think how they could build their own Nestor, much like robot fighting created a fervor when it was brought to the masses via national television.

Asimov, I feel, would have been quite proud of the film version of *I, Robot*. Asimov, not modest, would have loved that the title of his book — nearly 65 years after its birth — is emblazoned on the big screen and that it is on TV, radio, newspapers, magazine covers, and media everywhere.

Asimov was the first to view robots as useful tools, friends, and servants. He invented the word robotics and, in doing so, he influenced the evolution of a new field and their creators. He believed that the Three Laws — his most important contribution to science fiction (at the age of 20, by the way) — are necessary for human safety with regard to robots.

To this day, though safety has continually been an intrinsic factor in the design of robots, nothing has thus far replaced nor disproved the significance of the Three Laws. I think Asimov would have been thrilled with the movie's interpretation of the Three Laws and its ability to bring to the public so many present-day issues surrounding robotic technology. *I, Robot* is the materialization of Asimov's dream. **SV**

ADVERTISER INDEX

All Electronics Corp.	47	Net Media	2	Solutions Cubed	12
Budget Robotics	61	Parallax, Inc.	Back Cover	Sozbots	33
CrustCrawler	37	PCB123/PCBexpress	3	Supercircuits	25
Cyberbotics	11	PCB Fab Express	7	Surplus Sales of Nebraska	47
Eagle Tree Systems	24	Pololu Robotics & Electronics	27	Team Delta	79
Hack-a-Sapien Contest	71	Robodysey Systems LLC	55	Technological Arts	32
Hobby Engineering	57	Robotic Trends	40	Tetsujin 2004	8
Jameco	83	Rogue Robotics	13	Vantec	46
Lynxmotion, Inc.	15, 65	Solarbotics	51	Yost Engineering, Inc.	21
				Zagros Robotics	47