

Making Robots Think

In the unlikely event that you happen to meet a roboticist at a bar, mention one word: Autonomy. That's guaranteed to prompt either a lively discussion, or depending on the day, another drink order. In his book *Almost Human: Making Robots Think*, author Lee Gutkind provides insight into the complex society comprising roboticists, software designers, scientists and researchers who share the quest of imbuing robots with cognitive abilities, and ultimately, autonomy.

The universe housed in the High Bay at Carnegie Mellon University Robotics Institute in Pittsburgh is where robots learn to play soccer and to go on treasure hunts, and some are even given human names such as Pearl.

Gutkind, founder of University of Pittsburgh's creative-nonfiction writing program, chronicles this landscape from a multifaceted viewpoint by attending robotics meetings and project launches, and by traveling to the Atacama Desert in Chile to observe Zoë, a robot tasked with the lofty goal of trekking across the desert without human assistance. The team grapples with setbacks that crop up such as Zoë's vision-system failure and computer trouble while attempting to move forward with the project. Technological efforts such as these require cross-departmental collaboration to ensure each of the robot's systems functions with all the others, not an easy feat when teams are focused on specific components

that depend upon their expertise.

Gutkind summarizes the general mindset by stating, "Everyone understood that robotics is frequently frustrating, a gauntlet of trial and error and unyielding disappointment." However, when triumphs occur, they are monumental, because history is slowly being forged.

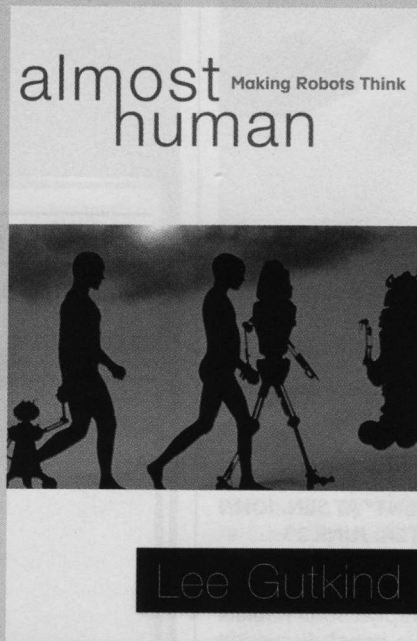
As you might imagine, the men and women who've selected robotics as their careers are passionately driven people, and Gutkind describes central figures with illuminating detail. Cast members include William "Red" Whittaker, "the father of field robotics," who is "consumed, obsessed, and disinterested in a world where robots do not or cannot exist." Then there's David Wettergreen—an associate research professor with a Ph.D. in robotics and part of the "Life in the Atacama" [LITA] project featuring Zoë—who eliminates "time-consuming responsibilities," such as shaving, by completing that task once a week. And, Manuela Veloso, an associate professor with her Ph.D. in artificial intelligence, is described as a "human cyclone," motivating people by her zeal.

There's another "autonomy" debate among roboticists: When robots

complete a task, are they thinking for themselves or merely fulfilling the programmer's commands? "This is something I ponder all of the time," says Ph.D. student Aaron Morris, "and I don't really have an answer. Thinking, intelligence, cognition are such vague words." It could be said that, although robotics is an exact science, the philosophy behind it may remain in the developmental phase for years, as we discover over time what robots are capable of.

Throughout the book, Gutkind skillfully and compellingly captures a behind-the-scenes portrait of a world that most of us are unaware of. Future success in robotics will likely never lead to anything resembling the famous cantina scene in *Star Wars*. Instead, Gutkind and his characters make the case that it will lead to something far more interesting.

—Jennifer Taylor



📖 ***Almost Human***
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