

THE MACHINE IN ME

AN ANTHROPOLOGIST SITS
AMONG COMPUTER ENGINEERS

GARY LEE DOWNEY

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*For Marta, my partner, and
Jamie, Megan, Michael, and Leah, my children*

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Preface and Acknowledgments

I LOCATE THIS BOOK in the context of dramatic change taking place in academic research. I see a huge shift underway that is making pedagogy the model of and basis for research rather than the other way around. Students are no longer empty vessels waiting to be filled but have become highly developed theorists who have to be convinced. What I see happening among teachers is an increased emphasis on intervening in the dominant images with which students work to make a difference in their lives. Good teaching is becoming the cultural practice of fitting our knowledges to what they already know, displacing some parts, reorganizing others, and convincing students in the process that accepting the offer will do them good. Good research is becoming the cultural practice of formulating ideas and ways of thinking that might intervene successfully in dominant images and ways of thinking, thus helping people understand and deal with changing circumstances.

I see many researchers giving up on the dream of the academy someday attaining a state of total knowledge or understanding—giving up on the image that, inside the academy, we are all competing to attain that state and, hence, there is little to distinguish knowledge production and dissemination from, say, war. What is beginning to emerge in its place is an image of academic work in universities, colleges, and other sites of teaching and learning as producing and maintaining a collection of knowledges, a multiplicity or plurality, each with its own cultural project. It is instructive, for example, that the perceived value of high-energy physics has shifted from the foundational to the cosmological, replaced by molecular biology, genetics, as the field that asks foundational questions. Disciplines are becoming

cultural projects that need not add up to a unified whole, nor dissolve away either. I think we should celebrate this shift, for it makes the academy possibly even more important than before as a culturally specified site for imagination. But this new academy is no longer just one thing. In academic work that is a collection of cultural projects, there is still competition, there are still standards. But the competition is increasingly to make a difference outside the academy. The pressure we are all feeling to demonstrate how the work in our corners makes a difference is a healthy pressure. Some of this is about jobs and economic development, but colleges and universities are as complex as the arrays of cultural projects out there calling for new imagination.

I suspect we will never live in the absence of dominant images, but what I find encouraging and beautiful in the emergent images is an acceptance of differences and an expectation of change. Images that picture a university as a collection of valuable knowledges expect the configurations of these knowledges to shift and change as cultural projects come and go and as the academy continually repositions itself in society. I find such an academy an attractive place to work and an important place to live.

I am hoping this book will call greater attention to the problem, practices, and pathways of intervention. Focusing on the dominant image of technology, my analysis makes visible experiences of computer engineers that do not fit the assumption that technology is an external force with inherently positive effects. It seems more plausible to expect new technologies to generate new problems even when it provides helpful solutions. But through what sorts of pathways might a theoretical innovation successfully intervene in the dominant image of technology, displacing some parts, reorganizing others, and convincing people in the process that the change will do them good? The risks involved in making intervention a yardstick for measuring research are great. When, for example, is an innovation likely to be pushed aside as a celebration of the dominant image, as an entrenched opponent, or as an irrelevance not worthy of mention? Despite many important theoretical innovations in interdisciplinary science and technology studies, the dominant cultural images of both science and technology have largely remained dominant. Furthermore, since every image makes some things visible while hiding others, the dominance of an image in the sense of its widespread use is not necessarily evidence of domination. When is living with a new image better than living with the old one? This book joins traditions of intervention from science and technology studies as yet another attempt to find out.

Making visible in people's experiences what dominant images hide has been a common contribution of anthropological accounts. I count this study among those that emphasize advancing new labels to help people imagine how things might be otherwise without claiming to make authoritative pronouncements of new realities. A main feature is to acknowledge the primacy

of the peoples studied in formulating and enacting theoretical change, with the ethnographer as critical participant. Perhaps avoiding the comforts of resolute optimism or pessimism and elaborating practices of critical participation might increase the extent to which theoretical innovations do indeed make a significant difference.

While I was discussing possible subtitles for this book with Bill Germano, vice president and director of publications at Routledge, we agreed that "An Anthropologist among Computer Engineers" evoked images of the arrogant, supposedly objective observer who presumed to plop himself (*sic*) down in the midst of a primitive people and straightforwardly record their culture. Ever since James Clifford and George Marcus published *Writing Culture* (University of California Press 1986), which made more visible the agencies of writing in ethnographic practice, the objective observer has been a difficult image to sustain. Yet as subsequent debates over ethnography have affirmed, writing is also only part of the story. I suggested "An Anthropologist Sits among Computer Engineers" with self-conscious irony, using the canonical image to call attention to an attempt at an alternative. In the first place, this subtitle literally describes what I did. Most of my work involved sitting down because that is what computer engineers have to do. Second, reporting the activity of sitting highlights the central argument of the book: The dominant image of technology hides experiences that blur the boundary between humans and machines. But third and most important, the image of an anthropologist sitting among computer engineers illustrates the larger point that the main authority and responsibility for theoretical change lies beyond the researcher. In this sense, to extend Laura Nader's wonderful term, ethnographic researchers are always 'studying up,' yet with responsibilities and commitments similar to those in good pedagogy. What I am seeking here is an effort at critical participation.

Accordingly, this attempt to intervene in the dominant image of technology has depended upon gifts from many theorists, people who have given me the benefit of their interpretations and who have imagined me and my work in relation to their own. I would like to extend my thanks to the dozens of people who talked to me about their experiences with CAD/CAM technologies, both those quoted here and those who preferred their names not be used. Those willing to be quoted include Darrell Early, Paul Gelhausen, David Gossard, David Grose, Sankar Jayaram, Uma Jayaram, Robert Jones, James Parham, Steve Payne, Sandy Poliachik, Kim Repass Ceruti, Donald Riley, Eric Schardt, Syed Shariq, Dalton Sherwood, Bob West, and Sam Wilson. Special thanks to Arvid Myklebust, my host specialist throughout the project, for his willingness to take a risk with me without knowing where it would take us. I am gratified it brought us closer together.

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