Mindell recounts a telling scene. In 1977, oceanographer Robert Ballard of the Woods Hole Oceanographic Institution in Massachusetts and microbiologist Holger Jannasch descended in a submersible. They came across a sea-floor vent field. As Ballard looked through the glass portal at the "crab gradient" near the fissure's source, he realized that Jannasch had his back to it. When asked why, Jannasch replied that the view was "better here", indicating the television image relayed from the craft's camera. In an 'aha' moment, Ballard realized that the view will always be better at the surface, where high-resolution video from below can be viewed in comfort. Yet many continue to argue otherwise.

Mindell looks at the compelling historical, cultural, political, psychological, philosophical and public-relations justifications for keeping people in control. A recent example is the July 2015 international petition to ban autonomous weapons, signed by almost 3,000 researchers. Consider, for instance, Google's announcement that it had found the most unreliable component in its autonomous cars: human drivers trying to take over. Its response was to remove the steering wheel. Mindell explains why this is a mistake. In what he calls the "myth of full autonomy", he points out that a machine may operate on its own for intervals, but that no machine works entirely independently: human intentions, assumptions and parameters are built into all machines. Mindell's experience leads him to a similar conclusion to Markoff's: the essential (and most difficult) challenge is designing the interfaces that keep humans in the loop.

Technological progress is not deterministic. There have been several cycles of irrational enthusiasm followed by disappointment and the evaporation of research and development funding, known as AI winters. The latest round of expectations feels similarly exaggerated.

Alarmist writing may hasten the next slump and distract attention from a more realistic and important development, which we might call multiplicity. Multiplicity characterizes an emerging category of systems in which diverse groups of humans work together with diverse groups of machines to solve difficult problems, consistent with the points made by Markoff and Mindell. Multiplicity thrives at the intersection of AI and IA, combining the wisdom of crowds with the power of cloud computing. As designer and computer scientist John Maeda has put it, it is not us versus the machines; it is us and the machines. There is much to gain by joining forces. ∎

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Books in brief
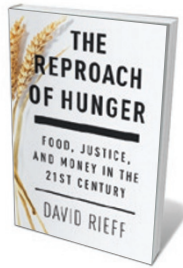
The Reproach of Hunger: Food, Justice and Money in the 21st Century
David Rieff VERSO *(2015)*
As refugee crises fill the news, David Rieff reminds that hunger is a war not won. Rieff, a veteran thinker on development issues, spent six years researching the nexus of population, food commodification and persistent poverty for this critical analysis. Scathing about the alarmist or over-optimistic pronouncements of development officials, agribusiness multinationals and philanthropic nabobs, he notes that any issue involving billions of humans cannot be neatly engineered. Thoughtful, trenchant and bracingly sceptical.
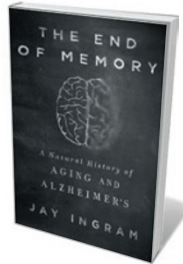
The End of Memory: A Natural History of Aging and Alzheimer's
Jay Ingram THOMAS DUNNE *(2015)*
Alzheimer's disease affects 5.3 million US citizens, and has so far eluded cure. In this deft overview, science writer Jay Ingram unravels the complexities of the science past and present. He examines the legacy of neurology pioneers such as Aloysius Alzheimer and Frederic Lewy; the biology of ageing and shifts in episodic and autobiographical memory; and the protein plaques and neurofibrillary tangles associated with the disease. And there is more, from the ongoing Nun Study of Aging and Alzheimer's Disease (begun by neurologist David Snowdon in 1986) to the idea of Alzheimer's as "type 3 diabetes".

Houston, We Have a Narrative: Why Science Needs Story
Randy Olson UNIVERSITY OF CHICAGO PRESS *(2015)*
Whether synthetic biology or exoplanet hunting, science told well can carry a thriller-like punch. Marine biologist turned filmmaker Randy Olson argues that narrative skill is central not just to science communication but also to research reportage, preventing false positives, yawn-worthy delivery and more. Olson prescribes the Hollywood formula "and, but, therefore" as the backbone of story, introducing momentum, conflict and resolution. He has packed his solid primer with analyses of how it is done, from James Watson's 1968 *The Double Helix* (Atheneum) to exemplary scientific abstracts.

Memory and Movies: What Films Can Teach Us about Memory
John Seamon MIT PRESS *(2015)*
Cinema has long exploited the dramatic potential of memory. Here, John Seamon exploits film's potential for elucidating neuroscience. Inspired by Christopher Nolan's 2000 *Memento* (which hinges on anterograde amnesia), Seamon trains a cinematic lens on aspects of memory from facial recognition to dementia. Philip Kaufman's 1978 *Invasion of the Body Snatchers*, for instance, mirrors Capgras' delusion, in which people believe that their acquaintances are doppelgängers; while Robert Redford's *Ordinary People* (1980) dissects post-traumatic stress disorder with exquisite precision.

Ornithological Photographs
Todd Forsgren DAYLIGHT *(2015)*
Photographer Todd Forsgren has spent years capturing images of birds, from hummingbirds to toucans, caught in mist nets — a tool widely used by ornithologists for ring-banding and data collection. Some may find the sight of immobilized birds in this collection disturbing. But Forsgren's book uniquely showcases the birds' individuality while testifying to the painstaking, ongoing work of field researchers striving to understand the ecology, population flux and more of wild birds. **Barbara Kiser**