

# IEEE Spectrum

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## MEMORY MAKER

ROBERT DENNARD, WINNER OF THIS YEAR'S IEEE MEDAL OF HONOR, FIGURED OUT HOW TO DO DRAM RIGHT

THE 25 MOST REMARKABLE CHIPS EVER

TOUCH SCREENS GET TOUCHY-FEELY

THE NETFLIX CHALLENGE: HELP US RECOMMEND MOVIES, WIN A MILLION DOLLARS

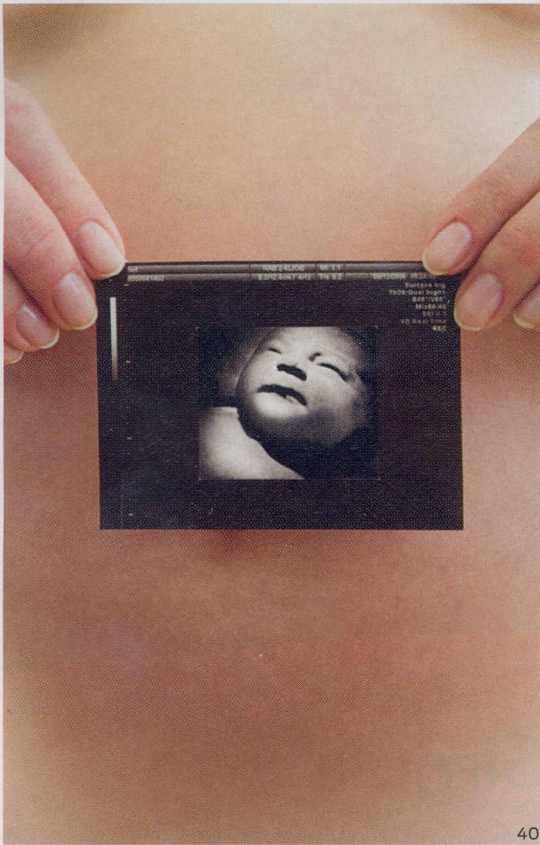
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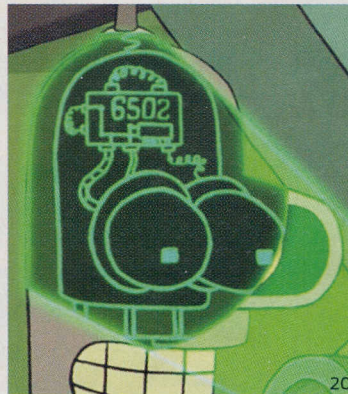
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**Celebrating 125 Years**  
*of Engineering the Future*



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**BETTER PICS:**  
Medical ultrasound images will soon be much sharper [above]; a famed 8-bit processor powers a famed cartoon robot [top right]; Netflix's prize adds the fuel of interest to the fire of genius.

**COVER:**  
DAVID YELLEN  
THIS PAGE: CLOCKWISE  
FROM LEFT: PAUL VOZDIC/  
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RANDI SILBERMAN

COVER STORY

# 44 THANKS FOR THE MEMORIES

Robert Dennard's 1968 invention of the one-transistor dynamic random-access memory set the path of computing for the next half century. For this, he will receive the 2009 IEEE Medal of Honor. *By Sally Adee*

# 24 THE MILLION DOLLAR PROGRAMMING PRIZE

To improve its recommender system, Netflix put a price on its head. *By Robert M. Bell, Jim Bennett, Yehuda Koren & Chris Volinsky*

# 30 25 MICROCHIPS THAT SHOOK THE WORLD

These chips unleashed groundbreaking technologies and gadgets—and are one reason that engineers don't get out enough. *By Brian R. Santo*

# 40 NEXT-GEN ULTRASOUND

Technology from the semiconductor industry promises to supplant the transducers now used for medical imaging. *By Butrus T. Khuri-Yakub, Ömer Oralkan & Mario Kupnik*

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