

IEEE Spectrum

THE MAGAZINE OF TECHNOLOGY INSIDERS

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12.11

THERE'S A STORM
RAGING AROUND
YOUR PLANE.
AS IT LANDS,
WHO DO YOU
WANT BEHIND
THE CONTROLS—
**A HUMAN OR
A MACHINE?**



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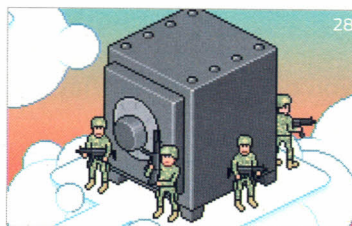
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Although military robots have proved their flying chops, commercial versions must clear a higher bar. *By Philip E. Ross*

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While cloud computing offers huge benefits to users, confidence in the cloud will continue to lag until providers address security concerns. *By Christian Cachin & Matthias Schunter*



34 THE STRANGE BIRTH AND LONG LIFE OF UNIX

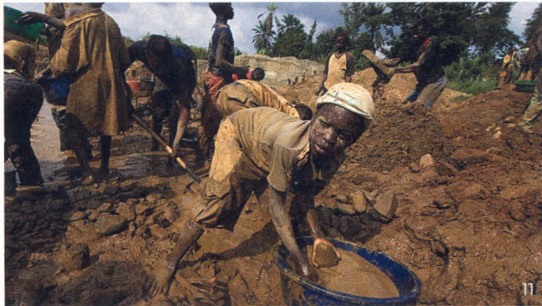
Unix turned 40 last month. The story of how it came to be, and the reason it has aged so well, will surprise you. *By Warren Toomey*

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The next generation of nanosystem technologies need very small sources of power, and carbon nanotubes might be up to the task. *By Michael S. Strano & Kourosh Kalantar-zadeh*

COVER: SEAN McCABE

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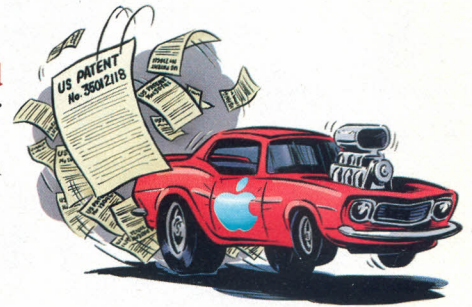
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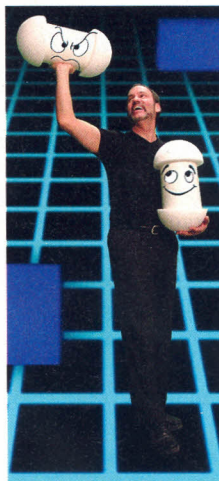
The World's Most Powerful Patent Portfolios, Revealed

Our annual Patent Power Scorecards, compiled and analyzed by the team at 1790 Analytics, show that U.S. companies like Apple, Yahoo, Microsoft, and Google are inventing their way to dominance. And Chinese companies like Huawei have started to make inroads, even as



the flow of patents from Japanese and German companies slows.

THEINSTITUTE.IEEE.ORG AVAILABLE 6 DECEMBER



MAKING THE JUMP INTO GAMES

In our special issue on gaming, learn what it takes to enter this growing industry.

HELP WITH GETTING YOUR GAME ON

A variety of skills are needed to make it as a game developer. IEEE offers several products and services that can help, from continuing education courses and tutorials to webinars and journals.

IEEE STANDARDS ASSOCIATION TAKES ON VIRTUAL WORLDS

These 3-D environments are still considered by some as best suited for games and entertainment. Other people see them as a potential business tool—if certain challenges can be overcome. The IEEE Standards Association recently gathered together virtual-world experts and users to foster cross-industry collaboration and reach a consensus on how best to address these challenges and set standards for the industry.

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AVAILABLE AT <http://spectrum.ieee.org/webinar>

1 December: Better Simulation of Dielectric Barrier Discharge Plasma Actuators Using VORPAL

15 December: Fluid Structure Interaction Simulation With COMSOL

Electrostatic Actuation With COMSOL Multiphysics

Big Demand Drives Small Solutions—Scalable Baseband Solutions

Accelerating Development of Smart Grid Power Electronics Control Systems With RCP and HIL Techniques

Getting More Benefits From Modeling Vacuum Electronic Devices

Power System Contingency Analysis and Security Constrained Optimal Power Flow in MATLAB

The Emerging Technology Forum Series: Reinventing Infrastructure for High Speed Rail

Plasma Modeling With COMSOL Multiphysics

The IEEE Emerging Technology Forum Series: Silicon Valley's Impact on the Automotive Industry

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Modeling and Simulation of HEV and EV Power Electronics

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