

**THE TRANSISTOR'S  
FARAWAY FUTURE**

Exotic materials,  
superlow power  
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**FIBER OPTICS'  
QUIET CRISIS**

Needed: another  
big breakthrough  
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**HOW TESLA MOTORS  
MARGINALIZED EVs**

Pushing luxury  
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**THE RISE OF  
DEEP LEARNING**

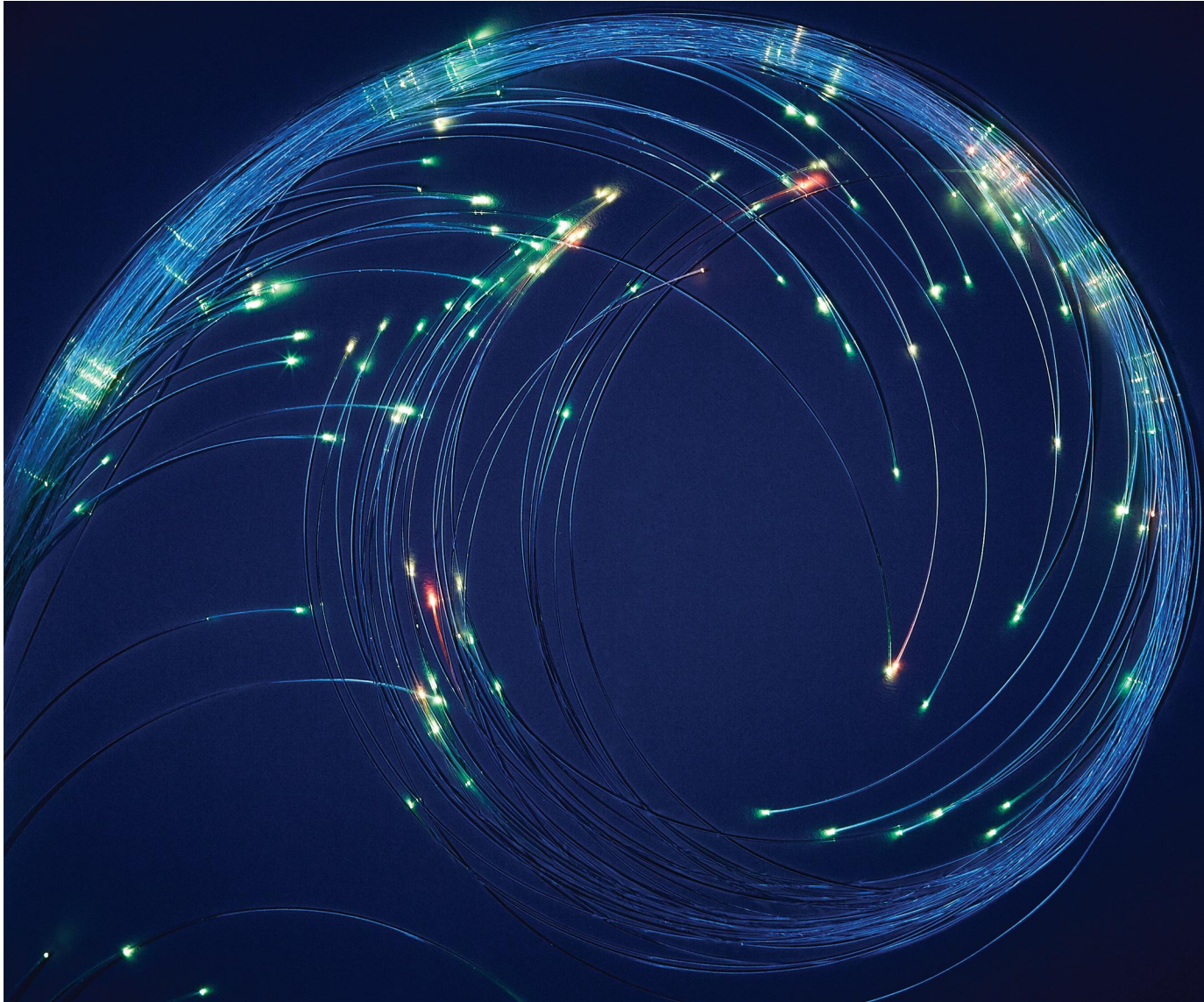
Experimentation  
trumps theory  
P. 40

IEEE  
**SPECTRUM**

FOR THE TECHNOLOGY INSIDER | 02.16



**It is the year 2023,  
and for the first time,  
a self-driving car  
strikes and kills  
a pedestrian.  
A lawsuit is sure  
to follow. But exactly  
what laws will apply?  
Nobody  
knows.**



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After decades of exponential growth, fiber optics faces an uncertain future. **BY JEFF HECHT**

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Why battery-powered all-electric cars for the masses are still a long way off.

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Was that a person or an artificial neural network?

**By Zachary C. Lipton & Charles Elkan**

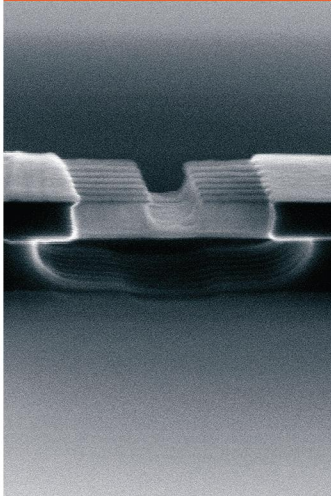
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Laws must evolve before autonomous vehicles hit the road.

**By Nathan A. Greenblatt**

On the Cover Photograph by Kevin Su/Alamy



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## Spectrum.ieee.org

**Highlights of CES 2016**  
*IEEE Spectrum*'s editors covered the world's largest consumer electronics show to find the coolest gadgets and game-changing products. Catch up on what you missed here: <http://spectrum.ieee.org/ces2016>

## ADDITIONAL RESOURCES

## Tech Insider / Webinars

Available at [spectrum.ieee.org/webinar](http://spectrum.ieee.org/webinar)

- ▶ Non Linear Magnetic Materials with COMSOL Multiphysics—11 February
- ▶ Grid Resiliency and Stability With Siemens Transformers—Available On Demand
- ▶ Signal Integrity: VNA Applications—Available On Demand
- ▶ **NEW PRODUCT RELEASE LIBRARY**  
<http://spectrum.ieee.org/static/new-product-release-library>
- ▶ **WHITE PAPERS**  
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## The Institute

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- ▶ **BREAKTHROUGHS FROM SPACE** Research from the International Space Station has led to a robotic arm that lends a helping hand in delicate surgeries, an app that identifies clean water sources, and cameras that aid in disaster response efforts.
- ▶ **HOW CURIE SAVED THOUSANDS** You may know Marie Skłodowska Curie for her pioneering advancements in radiology, but did you know that she also developed technology that saved the lives of countless soldiers during World War I?
- ▶ **MEDICAL DEVICE INTEROPERABILITY** The IEEE Standards Association has unveiled new interoperability standards for medical devices, 3-D printers, and other e-health devices.

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