



## **William S. Hammack**

Department of Chemical Engineering

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e-mail: [whammack@illinois.edu](mailto:whammack@illinois.edu)

websites: [www.engineerguy.com](http://www.engineerguy.com) (media work)

[www.scs.uiuc.edu/chem\\_eng/hammack/Faculty/hammack.html](http://www.scs.uiuc.edu/chem_eng/hammack/Faculty/hammack.html)

**M**AKE MAGAZINE called Bill Hammack a “brilliant science and technology documentarian[s]”, whose “videos should be held up as models of how to present complex technical information visually.” *Wired* called the videos “dazzling.” In a series of stunning videos – viewed millions of times – he gives masterful explanations of the engineering underlying, for example, LCD monitors, fiber optics communications, and hard disc drives. Since 1999 Professor Hammack has focused on explaining engineering and technology to the general public, becoming the first engineering professor to be tenured and promoted to full professor for this kind of outreach work. In addition to being the driving force behind the “EngineerGuy” video series, he has written *Why Engineers Need to Grow a Long Tail: A Primer on Using New Media to Inform the Public and to Create the Next Generation of Innovative Engineers* to help his engineering colleagues use new media to create a literate public. From 1999 to 2005 he broadcast weekly a public radio commentary on engineering. Distributed by Illinois Public Radio, they appeared on the public radio program Marketplace, and they appeared regularly in Australia on Robyn Williams’ Science Show produced by the Australian Broadcasting Corporation. From August 2005 to August 2006 he served as a Diplomat at the U.S. Department of State. He worked as a science advisor at the Korean Desk, working in part on the Six-Party Talks to denuclearize North Korea, and as a member of the Bureau of International Security and Non-proliferation working to secure highly-enriched nuclear material around the world. His course, The Hidden World of Engineering, is taught every semester to a diverse mix of students majoring in commerce, architecture, photography, history, and graphic arts. This popular course gives students an appreciation for engineering and for how engineers think. It is taught in a unique way that lets the students work in teams and actually do engineering.

### **Academic Positions**

August 2006-present

Professor, University of Illinois, Urbana-Champaign

August 2005-August 2006

Jefferson Science Fellow, U.S. Department of State

December 1997–August 2006

Associate Professor, University of Illinois, Urbana-Champaign

September 1992–December 1997

Associate Professor, Carnegie Mellon University (Pittsburgh)

September 1988–1992

Assistant Professor, Carnegie Mellon University (Pittsburgh)

## Honors & Recognition

*ACS/Exxon Fellowship in Solid State Chemistry*, American Chemical Society, 1992

*Teacher/Scholar Award*, Dreyfus Foundation, 1993

*Edwin F. Church Medal*, American Society of Mechanical Engineers, 2002

*Service to Society Award*, American Institute of Chemical Engineers, 2002

*Science-in-Society Award*, National Association of Science Writers, 2002

*Silver Reel National News & Commentaries* National Federation of Community Broadcasters,  
2003

*President's Award*, American Society for Engineering Education, 2003

*Distinguished Literary Contribution Furthering the Public Understanding of the Profession* IEEE,  
2004

*James T. Grady-James H. Stack Award*, American Chemical Society, 2004

*Science Writing Award*, American Institute of Physics, 2004

Fellow, American Institute of Physics, 2009

Fellow, American Association for the Advancement of Science (AAAS), 2009

First Prize, Science OnLine Film Festival (inaugural prize) 2010

## Selected Publications/Media Work

Four Series of “EngineerGuy” Videos (delivered via YouTube)

*Series of short video explaining the engineering behind everyday object; e.g., digital cameras, smartphone accelerometers, coffee makers, and lasers. Series #2, #3 and #4 each gathered over a million views.*

300 Public Radio Commentaries

*Created between 1999 and 2005, these commentaries, distributed by Illinois Public Radio, appeared on the popular business program Marketplace and internationally on Radio National Austria.*

*Why Engineers Should Grow a Long Tail: A Primer on Using New Media to Inform the Public and to Create the Next Generation of Innovative Engineers* (2010) ISBN Paperbound 978-0-615-39555-5  
ebook 978-0-9839661-2-8

*Often the details of new media get lost in an alphabet soup that usually begins with an “i” – the iPod, the iPad, the iTouch. Yet the essence of new media is not in these devices, but in their use. This*

*short primer shows engineers how to think about new media by focusing on the deeper issues of communicating in this new user-generated era. Readers will grasp the mindset of new media; an understanding that will long outlast the latest social networking tools. It will empower practicing engineers to develop new, powerful ways to help the public understand what engineers do and why engineering is important; but perhaps most importantly this primer gives engineers the foundation for reaching the next generation of innovative engineers.*

*How Engineers Create the World: The Public Radio Commentaries of Bill Hammack* (2011) ISBN  
Paperbound 978-0-9839661-0-4 ebook 978-0-9839661-1-1

*In over 200 delightful short essays Bill captures the creativity and impact of engineers. He talks of their spectacular achievements - jets, satellites, skyscrapers, and fiber optics—but draws his deepest insights from the everyday, the quotidian. He finds beauty, elegance and meaning in Ferris wheels, Tupperware, Slinkys, mood rings, waterless urinals and Velcro. Delivered originally on public radio between 1999 and 2005, each essay is a small slice of the world created by engineers. The essays also illuminate and inform about the important topics of our day by showing how intertwined engineering and technology are with terrorism, security, intellectual property and our cultural legacy.*

*Eight Amazing Engineering Stories: Using the Elements to Create Extraordinary Technologies* (with Patrick Ryan & Nick Ziech) 2012 ISBN Paperbound 978-0-9839661-3-5 eBook 978-0-9839661-4-2

*A companion volume to the fourth series of EngineerGuy videos, Eight Amazing Engineering Stories reveals the stories behind how engineers use specific elements to create the material world around us. In eight chapters, the EngineerGuy team exposes the magnificence of the innovation and engineering of digital camera imagers, tiny accelerometers, atomic clocks, enriched uranium, batteries, microwave ovens, lasers, and anodized metals. In addition, short primers cover the scientific principles underlying the engineering, including waves, nuclear structure, and electronic transitions. "In Depth" sections cover entropy, semiconductors, and the mathematics of capacitors.*