

**TechCast Weekly Radio Show - Tracking the Tech Revolution, with Prof. Bill  
Broadcasting to Silicon Valley, India, and other locations  
Thursday 9 am - 10 am PST/Noon – 1 pm EST at 92.3 HD radio**

The ***Tracking the Tech Revolution*** show explores how the Technology Revolution will rock your world. The hour-long show draws on interviews, call-ins, and Bill's career-long exploration of the revolutionary powers of science and technology – "TechCasting." Each show explores a tech topic using highlights of Prof. Bill's work at [www.TechCast.org](http://www.TechCast.org) – possibly the best forecasting system in the world. Bill interviews leading scientists, engineers, scholars, futurists, entrepreneurs, venture capitalists, CEOs, government officials, and others working on the cutting edge of innovation. The format is somewhere between an exciting online university course and a lively talk show, with Prof. Bill taking comments and questions throughout the hour.



## **Program for Sept 15, 2011**

**Hello Again, This is Prof. Bill with Tracking the Tech Revolution. The weekly show that explores show the tech revolution will rock your world.**

**This is our 3<sup>rd</sup> show. Recording of all shows available on [247TechRadio.com](http://247TechRadio.com) and slides on [www.TechCast.org](http://www.TechCast.org)**

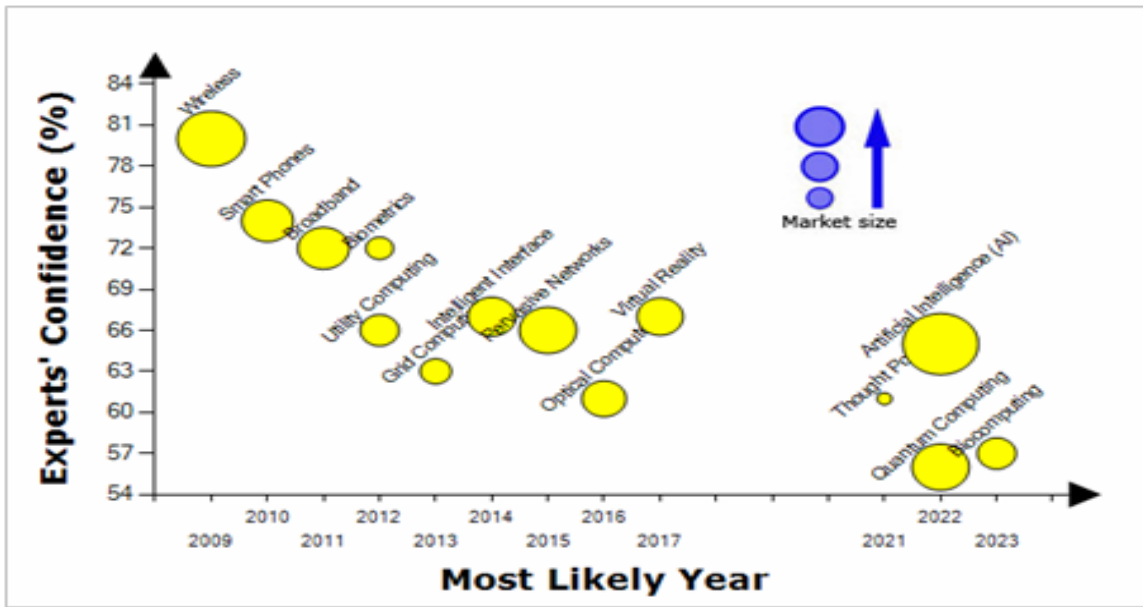


**This week's topic is IT** – the driving force behind the Tech Revolution. We'll discuss critical forecasts in this field.

**Interview with Marvin Cetron**, President of Forecasting International

**Audiocast of this show** can be heard at [Sept 15, 2011.](#)

## Information Technology



## Cloud Computing

- Provide power, software, security, etc.
- Most computers use 10-20% of capacity
- Salesforce/SimDesk, Google, Microsoft, Adobe, Intel/Yahoo/HP
- Private, public clouds
- IDC: "The cloud is the foundation for the next 20 years of computing."
- Loss of control? Response time?
- TechCast: 30% of computer use 2015

# Intelligent Interface

- Good speech recognition/AI, touch interfaces, big wall monitors, virtual robots/avatars, multimedia, virtual reality
- From TelePhone, to TeleVision, to TeleLiving - talk with life-like figures in work, shopping, education, medicine, etc.
- Virtual website salesperson, virtual assistants
- Voice control of computer, smart phone, TV, appliances
- Video conferencing & collaboration
- Electronic tutors, virtual doctors, lawyers, etc.
- IDC: "What the GUI was in '90s, the natural user interface will be this decade."
- Obstacles: Cynicism about AI. Mistakes & frustration
- TechCast: 30% of tasks by 2016

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# Virtual Reality

- Growing 30% year
- Useful for testing designs, surgery, training, visualize data, meetings, courtrooms, sports, etc.
- Improving: BB, wireless, AI, PC power, etc.
- Movies/TV going 3D. No glasses in 5-10 years
- Yahoo has 7 M users on VR sites (avatars, etc.)
- DoD developing 6 ft moving holographs
- Japan: virtual TV (3D, touch, smell) by 2020
- Augmented reality, telepresence, etc.
- Gartner: 80% of Internet users use Second Life
- UCLA, There, Pompeii, war, museums
- TechCast: 30% of people by 2017 +/- 4 yrs

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# Thought Power



- Skull caps, implanted electrodes detect brain signals
- Wireless control of PCs, machines, communications, wheelchairs, etc.
- Experiment where monkey controls robot
- Military remote control of weapons
- Chips implanted in 1 M dogs and cats, 1000 people; Prof. Warwick wired to PC, wife
- Electronic eyes, hearing, security, etc. - bionic person
- Sony able to control sight, sound, taste, etc.
- Artificial limbs controlled by thought
- Freeman Dyson forecasts of "radiopathy"
- **TechCast: Commercial use by 2021 +/- 9 yrs**

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# Optical Computing

- Now have switches, fiber, CD storage
- 1000 times faster
- Thousands of messages per channel
- Nanotubes emit light
- Holograms store 1 Terabyte/disc
- Able to store light signals
- Optical processors developed
- Possible successor to silicon
- **TechCast: Commercial computer by 2018**

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## Quantum Computing

- **Infinite power & storage** (Superimposition allows 1 electron to carry 2 qubits, 2=4, 3=8, 20 = 1 M bits)
- Entanglement permits teleportation
- Perfect cryptography – Harvard, etc.
- Memory, switches developed
- National Institute of Standards and Technology and D-Wave Systems first working computers
- Possible successor to silicon
- **TechCast-commercial computer 2023 +/- 5**

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## AI

- Growth: \$1 B in '93, \$12 B in '02, \$21 B in '07
- Speech recog, robots, games & simulations, GPS nav, language trans, emotion recog, etc.
- Intelligent systems: IBM Watson, Microsoft Bing, Wolfram Alpha, Google, Stanford, MIT, DOE. etc.
- DARPA Personal Assistant plus others
- 5 robotic vehicles completed DARPA competition
- IBM simulating the human brain (8,000 neurons)
- Kurzweil: \$1000 PC with power of the brain by 2020
- **TechCast: AI replaces routine mental work (“weak AI”) about 2022**

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### **GUEST INTERVIEW:** Dr. Marvin Cetron, Pres. of Forecasting Int'l

Best forecaster in the world. Forecast the 9/11 attacks.

Author of several books

Frequent consultant for US gov't and other organizations

1. Which of your 50 trends do you think are most critical to tech innovation, and what are their likely impacts?

## Cetron: Cyberwar

1. Specifically, which IT technologies are most likely to produce truly disruptive change? Cloud? Speech Recognition? Language Translation? Optical and Quantum Computing? Virtual Reality? Brain-Computer Interface (BCI), AI? etc?

Cetron:

- All of these other breakthroughs are coming faster than expected, often at great cost and efforts in secret military and intelligence programs.
- We need good BCI to manage far more intelligent machines. AI will soon be smarter than people.

2. Any general thoughts on encouraging tech innovation?

Thanks, Marvin. How can people reach you for more? Talks, Consulting, etc.? Phone 703 379-9033 Email "Marvin Cetron" <marglo@tili.com>

That's all for today

Next Week we discuss E-Commerce and interview Prof. Steve Ruth, GMU

Join me next week on Tracking the Tech Revolution with Professor Bill