

# Thoughts on IEEE

## My Vision as President

**Howard E. Michel**  
**IEEE 2011-2012 VP-MGA**

**IEEE Region 8**  
**21 April 2013**  
**Madrid, Spain**

# Who am I?

- Retired US Air Force Officer
  - Pilot
  - research, design and test engineer
  - engineering manager
  - satellite launch director



# Who am I?

- Retired US Air Force Officer
  - Pilot
  - research, design and test engineer
  - engineering manager
  - satellite launch director

United States Patent [19] Patent Number: 4,811,308  
Michel [45] Date of Patent: Mar. 7, 1989

[54] SEISMO-ACOUSTIC DETECTION, IDENTIFICATION, AND TRACKING OF STEALTH AIRCRAFT

[76] Inventor: Howard E. Michel, 49 Beverlee Rd., Tyngsboro, Mass. 01879

[21] Appl. No.: 924,707

[22] Filed: Oct. 29, 1986

[51] Int. Cl. G01S 3/80

[52] U.S. Cl. 367/134; 367/124;

367/129; 367/118; 367/906; 340/541; 102/211

[58] Field of Search 367/135, 136, 124, 129, 367/118, 93; 340/565, 566, 541, 523; 102/211, 427, 419, 181/122

## References Cited

### U.S. PATENT DOCUMENTS

3,734,190 11/1973 Kyle, Jr. 340/238 R.  
3,824,532 7/1974 Vanderendonek 340/15  
3,852,706 12/1974 Barney et al. 340/6 R.  
3,995,223 11/1976 Giesler et al. 181/122  
4,041,442 1/1977 Marquardt 367/129  
4,083,031 4/1978 Pharo, Jr. 340/5 R.  
4,308,735 4/1980 Suzuki et al. 367/136  
4,321,838 3/1982 Hoff et al. 367/124  
4,408,533 10/1983 Owen et al. 367/136  
4,408,884 10/1983 Owen et al. 367/136  
4,538,439 12/1983 Quaden 367/127  
4,630,246 12/1986 Fogler 367/135

### OTHER PUBLICATIONS

"The AFGL Vibro-Acoustic Measurement System", Howard E. Michel, AIAA Shuttle Environment and

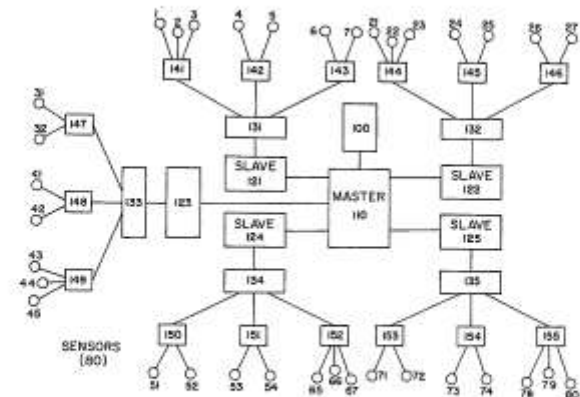
Operations II Conference, A Collection of Technical Papers, Houston, Texas, Nov. 13-15, 1985.

Primary Examiner—Thomas H. Tarcea  
Assistant Examiner—Daniel T. Philic  
Attorney, Agent, or Firm—William G. Austin, Donald J. Singer

## ABSTRACT

An aircraft detection system which detects and tracks aircraft using arrays of seismic and acoustic sensors, a set of junction circuits, a set of subarray circuits, several slave computers, and a master computer. Each junction circuit relays detected signals from several adjacent sensors to a subarray circuit and command signals to each of the sensors to adjust the gain of their output signals. Each subarray circuit receives and animates the outputs of several adjacent junction circuits into a subarray which has a particular geographical location in the array of sensors. Each slave computer forwards detected signals from single subarray circuit to the master computer, and relays command signals back to each individual sensor. Each subarray is able to track the seismic or acoustic signature of an aircraft as it travels across the regular distribution of sensors. Each subarray is thereby able to define an azimuth to the target aircraft. Collectively the information from several subarrays yields several azimuths from which the position of the aircraft may be located by triangulation of the azimuths.

8 Claims, 5 Drawing Sheets



# Who am I?

- Retired US Air Force Officer
  - Pilot
  - research, design and test engineer
  - engineering manager
  - satellite launch director

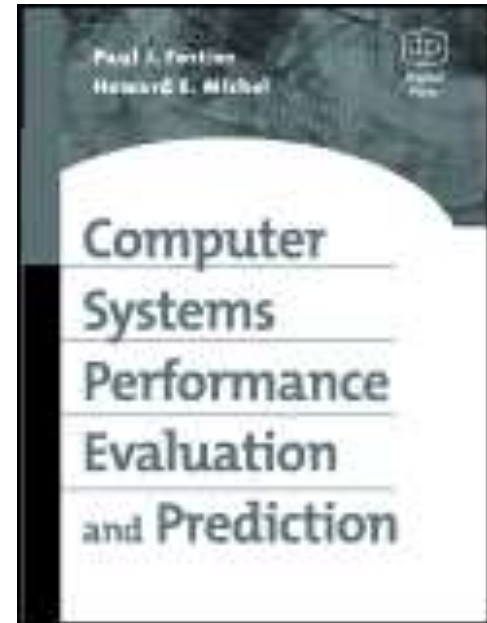


# Who am I?

## ■ Associate Professor – UMass Dartmouth

- 2 patents, a textbook, 15 journal papers, 43 conference papers
- Graduated 3 Ph.D. & 35 MS students
- Computer Society and Computational Intelligence Society

## ■ Consultant for DoD



# What have I accomplished in IEEE?

- VP-MGA (2011-2012)
  - Member value
    - Metro Area Workshops
  - Conference quality
  - Reinvigorate geo units
  - International issues
    - Regional Geographic strategies
- Public Visibility Chair (2009-2010)
  - *Advancing Technology  
for Humanity*
- Region 1 Director (2008-2009)

# Three things I will accomplish

- Deliver value for working engineers
- Grow membership worldwide, including the US!
- Develop a IP publishing and conference process for the 21st century

# Value for working engineers

- IEEE fosters Career Security for academics, lets do the same for working engineers
  - Professional networking
  - Metro Area workshops and continuing education
  - Practitioner magazines, conferences and interactive and live IP
  - Work with industry

# Grow membership worldwide

- Look at other associations like SPIE
  - In all our areas of interest
  - Appeals to working engineers
- Regional Geographic Strategies
  - Look globally – including the US

# IP for the 21<sup>st</sup> Century

- Integrated web of knowledge
- Work in the problem space, not technology stovepipes

**Thank you for  
listening and for  
your continued  
IEEE membership**

**[www.howardmichel.net](http://www.howardmichel.net)**  
**[h.michel@ieee.org](mailto:h.michel@ieee.org)**