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**TIMOTHY W. ATHAN, Ph.D., P.E.**  
**SENIOR CONSULTANT**

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Dr. Athan investigates incidents pertaining to product performance with an emphasis on software behavior. His decades of work experience have spanned automotive, aerospace and power generation. He also has substantial governmental regulatory experience.

Dr. Athan's experiences with control systems and software development enable him to evaluate the role software played in an incident. One important aspect of software performance is the computer interface that humans use to interact with the software. Dr. Athan can analyze how the software can affect product safety and robustness.

Dr. Athan's experiences in design optimization, dynamic system simulation, and test methods, (design of experiments, engineering statistics, and data analysis) are directly applicable to product development programs.

**Areas of Specialization**

Controls Software – the methods used in computer control, from toasters to power plants

Software Reliability – how well software has been designed to adapt to interactions with humans, and with changing environments, and with degraded components

Design Optimization – a quantified, objective approach to developing a product

Dynamic System Simulation – analysis of the way objects move, and the forces involved

**Education**

Ph.D., Mechanical Engineering, University of Michigan, 1994

M.S., Mechanical Engineering, University of California at Berkeley, 1984

B.S., Mechanical Engineering, University of California at Santa Barbara, 1983

B.A., Economics, Brown University, 1976

**Licensed Professional Engineer (P.E.)**

State of MI ..... License No. 6201037641

## **Professional Affiliations/Honors**

### **American Society of Mechanical Engineers (ASME)**

Member and 2007 Fellow

### **General Motors**

Ph.D. Fellowship, full salary during full-time Ph.D. studies, 1990-1994

### **U.C. Berkeley**

James Marshall Wells Memorial Fellowship, 1983

### **U.C. Santa Barbara**

President's Undergraduate Fellowship, 1982

### **U.C. Santa Barbara**

Moller Scholarship, 1982

### **Class of Eighteen Seventy-Three**

First Prize for economics essay, 1976

### **National Merit**

Semi-finalist, 1972

## **Positions Held**

### **Engineering Systems Inc., Ann Arbor, Michigan**

Senior Consultant, 2013 – Present

### **General Motors Powertrain, Milford, Michigan**

Engine controls Algorithm Developer (contract), 2009 – 2013

### **U.S. Department of Energy, Washington, D. C.**

Evaluator of Manufacturing Technologies Applicants for Economic Reinvestment Act of 2009 (Stimulus funding), (contract), November 2009 to February 2010

### **Rolls Royce Fuel Cell Systems, North Canton, OH**

Power Plant Controls Developer (contract) 2008, 2009

### **American Society of Mechanical Engineers, Washington, D.C.**

Federal Fellow assigned to the Science and Technology Committee of the U.S. House of Representatives, 2007

### **Ford Motor Company, Dearborn, MI**

Vehicle Dynamics Simulation Development (contract), 2006

### **Applied Dynamics International, Ann Arbor, MI**

Applications Engineer, 1997 to 2006

Supported simulation and controls system development for automotive, aerospace, and power generation applications. Also involved in “safe code” generation methods and safety-critical software testing.

### **General Motors Corporation Legal Staff, Milford, MI**

Consultant, Control Systems Failure Analysis, 2000, 2001

### **General Motors Powertrain, Ypsilanti, MI**

Senior Project Engineer, Transmission Engineering, 1996, 1997

### **General Motors Corporation, Brake and Bearing Systems Center, Milford, MI**

Senior Project Engineer, 1988 to 1996

Project Engineer, 1986 to 1988

Associate Engineer, 1985 to 1986

## **Technical Presentations and Publications**

“Software Failure: Different Than Hardware Failure,” **Athan, T. W.**, Western Loss Association, Oakbrook, IL, July 2015.

“Flight Plan Improvements Ahead,” **Athan, T. W.**, PE Magazine, November 2007.

“Multicriteria Optimization of Anti-lock Braking system Control Algorithms,” **Athan, T. W.** and Papalambros, P.Y., Engineering Optimization, Vol. 27, No. 3, (1996), pp. 199-227.

“A Note on Weighted Criteria Methods for Compromise Solution in Multi-Objective Optimization,” **Athan, T. W.** and Papalambros, P. Y., Engineering Optimization, Vol. 25, (1995). pp. 65-81.

“Multicriteria Optimization of Anti-lock Braking System Algorithms,” Lootsma, F. A., **Athan, T. W.**, and Papalambros, P. Y., presented at the XIIth International Conference on Multiple Criteria Decision Making Refereed Proceeding, (1995).

## **Patents**

“Intake Temperature Control Systems and Methods for Intake Manifold Protection,” Patent 2014/0372,009, Jerry Song, Gregory York, Jon C. Wasberg, Josef C. Correia, and **Timothy W. Athan**. Issued December 18, 2014.

“Torque limiting engine lubrication protection system,” Patent 8602001, Jeffrey M. Kaiser, Christopher E. Whitney, **Timothy W. Athan**, Dennis A. Light, and Timothy L. Gibbs. Issued December 10, 2013.