

## Michael J. Duoba

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### Professional Experience

- **1997-Present.** Mechanical Engineer in the Center for Transportation Research, Energy Systems Division at Argonne National Laboratory
  - Team leader for the Advanced Powertrain Research Facility
  - Oversaw the development of this state-of-the-art research facility from its inception to its current state as a multi-dynamometer, multi-technology test facility
  - Responsible for developing test protocols and data acquisition systems for engines, electric motors and vehicles – technologies that have few standardized test procedures
  - Directed outside software consultants to develop standardized data acquisition code that is used in all the test cells
  - Developed fast, generic and graphical post processing code that is modular and compatible with data acquisition software that performs many procedures and functions not available from off-the-shelf software
  - Invented the *in-situ* engine torque measurement method for providing data from advanced vehicles for internal model validation
  - This method is now being used by two automakers for model validation in developing new efficient powertrains and competitive vehicle data analysis
  - Responsible for generating the data Ford, GM, and DaimlerChrysler use as a standard for advanced vehicle test and analysis (Japan Toyota Prius, U.S. Prius and Honda Insight)
  - Routinely consult with the California Air Resources Board and SAE on how to properly test hybrid electric vehicles
- **1993-1997.** Assistant Mechanical Engineer in the Center for Transportation Research, Energy Systems Division at Argonne
  - Technical Director of 1993 Natural Gas Vehicle Challenge, 1995 hybrid electric vehicle (HEV) Challenge and 1996-1999 FutureCar Challenges
  - Developed and wrote the competition rules encompassing technical and safety specifications of all major vehicle areas, including high-voltage drive systems, energy storage, mechanical systems, vehicle structure and body and gaseous and liquid fuel systems
  - The current Advanced Vehicle Technology Competitions still use many of the rules that were developed from 1994-1999
  - Developed and administered over 100 HEV tests at dynamometer facilities at the U.S. Environmental Protection Agency in Ann Arbor, Michigan, New York City Department of Environmental Protection, California Air

Resources Board, Automotive Test Laboratories (Arizona and Ohio), Ford Motor Company, General Motors and DaimlerChrysler providing an unequalled amount of practical experience in testing a wide variety of HEVs

- **1989-1991.** Cooperative Education Student in the Advanced Battery Group of the Chemical Sciences and Engineering Division at Argonne
  - Fabricated advanced electric vehicle Li/FeS<sub>2</sub> battery cells and built special testing fixtures for life-cycle tests and area specific impedance measurements

## **Education**

- MS, Mechanical Engineering, University of Wisconsin-Madison, 1993
- BS, Mechanical Engineering, Illinois Institute of Technology, 1991

## **Awards**

- *Crain's Chicago Business* annual feature "40 under 40" highlighting Chicago's most influential and successful younger professionals (2000)

## **Laboratory Committees**

- Member of Transportation Technology R&D Center's "Transportation Working Group"

## **Professional Society Affiliations**

- Member of Society of Automotive Engineers
- Consultant to SAE standard J1711 HEV Test Procedure Task Force

## **Publications**

- 11 peer reviewed conference papers
- 9 conference papers approved by a conference committee
- 5 reports and documents
- 26 oral presentations