



**D E S I G N  
R E S E A R C H  
E N G I N E E R I N G**

46475 Desoto Court  
Novi, Michigan 48377  
Tel: (248) 668 - 3450  
Fax: (248) 668 - 3460

## **Joel T. Cowells, P.E. Senior Project Engineer**

### **Professional Profile**

Mr. Joel T. Cowells is a Senior Project Engineer in the Electrical Engineering Discipline at Design Research Engineering. He specializes in software and control systems, including vehicle powertrain algorithms and software and microprocessor-based computer systems including programmable logic controllers (PLCs). Other areas of expertise include vehicle electrical systems analysis and electronic component failure analysis.

Mr. Cowells has been involved in numerous projects related to vehicle electrical systems hardware and software performance including airbag systems, engine control components, heated seats, and various aftermarket products. He has also analyzed programmable logic controller hardware and software and other computer systems related to commercial and industrial applications including automatic doors, industrial machinery, industrial boilers and furnaces, and batch processing equipment. Mr. Cowells is familiar with industry standards for industrial boiler and furnace control systems and the field of industrial process control, including burner management and combustion control systems, for these boilers and furnaces. Additionally, Mr. Cowells has investigated thermal events attributed to vehicle components and commercial and residential heaters, pumps, and other equipment.

Prior to joining Design Research Engineering, Mr. Cowells was a Senior Engineer in Exponent's Electrical and Semiconductors practice. Mr. Cowells also worked at General Motors Corporation where he was involved in algorithm definition and software development for powertrain control modules, vehicle level integration and testing, and performing root cause analysis of identified issues. He developed an expertise in problem identification and resolution by performing Failure Mode Effects Analyses in these areas.

### **Academic Credentials and Honors**

M.S., Computer Engineering, Wayne State University, 2003

B.S., Electrical and Computer Engineering, Wayne State University (*summa cum laude*), 2001

Wayne State University College of Engineering Alumni Association Outstanding Graduating Senior Award (2001)  
General Motors Intern Scholarship (2000)

### **Licenses and Certifications**

Licensed Professional Engineer, Michigan, #6201054704

### **Professional Memberships**

Member, Society of Automotive Engineers (SAE)

Member, Institute of Electrical and Electronic Engineers (IEEE)

Past member, Tau Beta Pi Engineering Honor Society (TBP)

### **Publications**

Fecke MT, Martens JD, Cowells JT, Morrison DR. A Guide to Developing and Implementing Safety Checklists: Plant Steam Utilities. American Institute of Chemical Engineers, 2010 Spring National Meeting, 25<sup>th</sup> Center for Chemical Process Safety International Conference (CCPS), San Antonio, Texas, March 22-24, 2010.

Morrison DR, Martens JD, Ogle RA, Cowells JT. Root Cause Analysis of a Cryogenic Refrigeration System Explosion. American Institute of Chemical Engineers, 2009 Spring National Meeting, 43<sup>rd</sup> Annual Loss Prevention Symposium, Tampa, Florida, April 26-30, 2009.

Morrison DR, Martens JD, Ogle RA, Cowells JT. Accident Investigation Using Process Control Event Diagrams. American Institute of Chemical Engineers, 2009 Spring National Meeting, 24<sup>th</sup> Annual CCPS International Conference, Tampa, Florida, April 26-30, 2009.