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**Daniel K. Carabell, M.S.**  
**Senior Staff Consultant**

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Mr. Daniel K. Carabell is a Senior Staff Consultant for ESi. Mr. Carabell has over seven years of materials engineering and operations management experience using lean six sigma manufacturing principles. He specializes in sand casting processing and heat treatment of lightweight metals, such as aluminum and magnesium. He is experienced in failure analysis, metallurgy, materials processing, and material characterization techniques including optical microscopy, scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS), Fourier transform infrared spectroscopy (FTIR), and X-ray diffraction (XRD).

Prior to working at ESi, Mr. Carabell worked in the aerospace industry as a six sigma black belt. In his various roles, he specialized in improving lightweight metal casting processing including tungsten inert gas (TIG) plug welding, heat treatment fixturing and processing, hot isostatic pressing (HIP), laser and white light dimensional scanning as well as 3D sand printing technology. He completed his bachelor's degree from the University of Michigan and his master's degree from the University of Illinois, both in materials science and engineering.

### **Areas of Specialization**

Sand Casting Lightweight Metals (Aluminum and Magnesium)  
Heat Treatment of Lightweight Metals  
Metallurgy  
Materials Processing and Characterization  
Failure Analysis  
Lean Six Sigma Manufacturing

### **Education**

M.S., Materials Science and Engineering, University of Illinois, Urbana-Champaign, IL, 2016  
B.S.E., Materials Science and Engineering, (Cum Laude), University of Michigan, Ann Arbor, MI, 2015

### **Certifications**

Six Sigma Black Belt Certification – Minneapolis MN 2019

**January 2024**

## **Professional Affiliations/Honors**

### **Minerals, Metals and Materials Society (TMS)**

Member, 2013-2015, Present

### **Material Advantage**

Member, 2013-2015

### **Michigan Material Society – University of Michigan**

Member, 2013-2015

## **Positions Held**

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

Sr. Staff Consultant, 2023 – Present

Materials Science and Engineering Intern, 2015

### **Consolidated Precision Products, Minneapolis, Minnesota**

Operations Manager, 2021 - 2023

CI Supervisor of Engineering, 2019 - 2021

Product Engineer, 2017 – 2019

### **Magna International Inc., Troy, Michigan**

Research and Development Engineering Intern, 2016

### **TRW Automotive, Livonia, Michigan**

Materials Science Intern, 2014

### **KUKA Systems and Robotics, Sterling Heights, Michigan**

Mechanical Design/Software Engineering Intern, 2013

## **Continuing Education**

Center for Creative Leadership – CCL Boost for New Leaders 2021-2022