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Engineering & Scientific Consulting

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### Professional Profile

Dr. Nirankari's areas of expertise include failure analysis, metallurgy, fracture, welding, finite element modeling and materials characterization. Dr. Nirankari has conducted research and failure analysis of metals and welds involving both experimental and computational approaches. He has applied his expertise to a range of engineering fields, including automotive, aerospace, consumer electronics and utilities. He has experience with mechanical testing techniques, fractography, metallurgical and microstructural analysis, non-destructive evaluation, microscopy and computational mechanics.

Dr. Nirankari has extensive experience performing mechanical testing as well as microstructural analysis via optical microscopy, scanning electron microscopy (SEM), electron backscattered diffraction (EBSD), transmission electron microscopy (TEM) and energy dispersive X-ray spectroscopy (EDS). He is also skilled in computed tomography (CT). His computational expertise lies in use of finite element modeling. He has extensive experience with commercial finite element software (Abaqus) and computer aided design software (SolidWorks).

During his graduate study at the University of Michigan, Dr. Nirankari's research included the use of mechanical testing to understand the crack initiation and small crack propagation behavior of aluminum spot welds and finite element modeling to predict the weld lifetime. As an undergraduate, Dr. Nirankari's research focused on improving the efficacy of plasma sprayed thermal barrier coatings for turbine blades.

### Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, University of Michigan, Ann Arbor, 2017

B.S., Mechanical Engineering, Boston University, 2010

### Licenses and Certifications

Certified SolidWorks Associate

Dry Suit Certified SSI Open Water Diver

### Prior Experience

Graduate Student Research Assistance, University of Michigan, 2011-2017

## Professional Affiliations

ASM International

American Welding Society

The Minerals, Metals & Materials Society

## Publications

Nirankari V, Li M, Allison J. Microstructural effects on small fatigue crack growth of resistance spot welded aluminum alloys 5754 and 6111. Oral presentation, The Minerals, Metals & Materials Society Annual Meeting, Nashville, TN, 2016.

Nirankari V, Li M, Allison J. Modeling small fatigue crack growth and applications to spot welded aluminum alloys 5754 and 6111. Poster presentation, The Minerals, Metals & Materials Society Annual Meeting, Nashville, TN, 2016.

Nirankari V, Li M, Allison J. Microstructural effects on small fatigue crack growth in resistance spot welded sheet 5754 and 6111 aluminum and durability modeling of eyebrow cracking in resistance spot welds. Oral presentation, Materials Science & Technology (MS&T), Columbus, OH, 2015.

Nirankari V, Li M, Allison J. Influence of microstructure on growth of small fatigue cracks in aluminum alloy 6111. Oral presentation, Materials Science & Technology (MS&T), Pittsburgh, PA, 2012.

## Peer Reviewer

International Journal of Fatigue