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JIMMY SOMMER **STAFF CONSULTANT**

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Jimmy Sommer is a Systems Engineer with experience in product design, materials characterization, failure analysis, custom fixture development, and laboratory management. Jimmy is adept at the facilitation of material investigation (polymer, metals, chemistry) as well as fixture and method development for novel test applications.

In addition to his materials expertise, Jimmy has also provided analysis for matters in other engineering disciplines, such as electrical, automotive, fire, biomechanics, and safety. He routinely plans and coordinates testing for laboratory investigations and is proficient with physical and analytical failure analysis techniques and equipment. His skill set includes the precision sectioning and preparation of a wide range of materials including plastics, metals, composites, oils, wood, and electronics.

He received his bachelor's degree in Systems Engineering and Design from the University of Illinois Urbana-Champaign complemented by a secondary field in Product Design. His studies provide a diverse range of skills, from component and consumer-product design to control systems and electronics pertaining to robotics.

Areas of Specialization

Lab & Industrial Services

Material Characterization (FTIR, DSC, TGA, SEM/EDS, Hardness, UTM, CTL, Melt Flow)

Custom Test Fixture Development

Instrumentation and Data Acquisition

Failure Analysis

Safety

Intellectual Property

Education

B.S., Systems Engineering and Design, University of Illinois Urbana Champaign, 2020

Positions Held

Engineering Systems Inc., Aurora, Illinois

Staff Consultant, January 2024 – Present

Lab Manager, November 2021 – December 2023

University of Illinois Urbana Champaign, Champaign, Illinois

Research Assistant, January 2021 – June 2021

Engineering Summer Camp Instructor, May 2019 – August 2019

Publications/Presentations

- "Forensic Evidence of Arc Tracking as an Ignition Source," T.J. Bajzek, E.A. Burns, R.P. Baron, B.M. May, **J.P. Sommer**, 2023 IEEE International Symposium on Product Compliance Engineering (ISPCE), 1-3.
- "Conquering Can Conundrums: Getting to the Bottom of Beverage Can Failures," E.A. Burns, E.E. Wright, **J.P. Sommer**, presented at the 2023 IMAT Conference, Detroit, MI, October 17, 2023
- "Metallurgical Evidence of Arc Tracking as an Ignition Source," E. Burns, T. Bajzek, R. Baron, B. May, and **J.P. Sommer**, presented at IMAT 2022, New Orleans, LA, September 12, 2022
- "Identification of Mixed In-Service Automotive Fluids inside a CVT and Differentials", G. Nagalia, E.J. Manuel, and **J.P. Sommer** presented at IMAT 2022, New Orleans, LA, September 12, 2022
- "Uncovering Generative Design Rationale in the Undergraduate Classroom," M.H. Goldstein, **J.P. Sommer**, N.T. Buswell, X. Li, Z. Sha, H.O. Demirel, 2021 IEEE Frontiers in Education Conference (FIE), 1-6.

Project Experience Highlights

Water bead ingestion – Analysis of water absorbent polymer beads' ability to pass through one's digestive system. Tested to and extended beyond method discussed in ASTM F963 Toy Safety Standard

Wire insulation performance comparison – Characterized chemical composition and physical properties of several wire insulation variants. Assessed product viability from observed performance.

Hard disk drive patent – Performed precision disassembly of hard drives to uncover fragile micro components. Assessed compliance of multiple makes and models to patent documentation.