



Mathew Smith

PhD PEng

Project Engineer

contact

✉ mathew.smith@meaforensic.com

📞 778.724.1622

📍 Vancouver

expertise

Failure Analysis

Aviation Investigations

Mathew Smith is a Project Engineer in MEA Forensic's Failure Analysis group, and is based in the firm's Vancouver office. He investigates the causes of material, component, and mechanical system failures in a wide range of insurance and litigation sectors, from residential and commercial buildings to transportation and heavy industry. Mathew has worked on everything from failures in plumbing and fire sprinkler systems, to problems with medical equipment and consumer products, to incidents involving cars, boats, and aircraft.

For Mathew, every piece of evidence, big or small, can be revealing. A microscopic examination of a fracture surface, for example, can often distinguish the difference between a one-time overload fracture versus slow-growing progressive failures like fatigue and corrosion. Combining these small details with the overall big picture results in defensible opinions about causation. "The more complex the system, the more pieces to the puzzle, the more satisfying it is to uncover the chain of events that led to a failure," he says.

Mathew earned a Master's and a PhD in Mechanical Engineering, with a specialization in aerospace materials, from the University of Manitoba and the University of British Columbia – Okanagan, respectively. His doctoral research focused on repairing in-service jet engine components made of high-performance superalloys.

Mathew values MEA's commitment to integrity and impartial analysis. "We don't advocate; we follow the science. Conclusions based on evidence stand up to scrutiny, and that's how we earn trust in this field."

education

Doctor of Philosophy, Mechanical Engineering, University of British Columbia – Okanagan, 2017.

Masters of Science in Mechanical Engineering, University of Manitoba, 2013.

Bachelor of Science in Mechanical Engineering (Aerospace Engineering), Dean's Honors List, University of Manitoba, 2011.



professional status

Registered Professional Engineer, Engineers and Geoscientists British Columbia (EGBC), License No. 51032.

X-ray Fluorescence Operator Level 1, Natural Resources Canada National Non-Destructive Testing Certification Body, License No. 32789

professional experience

MEA Forensic Engineers & Scientists

April 2025 to present | Project Engineer

Conducts technical investigations of mechanical and material failures related to product, property, transportation, heavy industry, and equipment losses by employing scientific failure analysis tools to isolate root cause and contributing factors related to defective use, maintenance, inspections, manufacture, or design.

Consultant

June 2019 to March 2025

Consultant for industry and academic institutions. Developed processes, infrastructure, facilities, and procedures to support advanced materials research. Reviewed and edited journal publications, technical reports, and other academic and engineering documents. Developed, supported, and reviewed research grants applications.

Selkirk College

October 2019 to October 2020 | Lead Researcher: Advanced Materials

Successfully collected \$1.7 million in grant funding for projects at the Selkirk College Applied Research and Innovation Centre.

University of British Columbia

June 2018 to May 2019 | Post Doctoral Fellow, Mechanical Engineering

Designed a new rubber recycling system and ways to upgrade the raw products for use in other industries.

June 2017 to May 2019 | Senior Researcher and Materials Lab Manager

Conducted research and development activities and project management.

January 2014 to May 2019 | Forensic Consultant

Performed material analysis for industry, including but not limited too: failure analysis, fitness-for-service, mechanical testing, microstructural characterization (energy dispersive spectroscopy analysis, scanning electron microscopy, optical microscopy).

University of Manitoba

June 2011 to April 2012 | Research and Teaching Assistant

Made and marked lab and class assignments, ran laboratory lectures, and taught for *Introduction to Material Science* and *Corrosion of Metals and Alloys*. Performed advanced materials research-based tasks including experimental design, material sample preparation, testing, characterization and analysis, data collection and analysis.

publications

In-Situ Fitness-for-Service Assessment of Aluminum Alloys Developed for Automotive Powertrain Lightweighting

Mechanical properties and microstructural evolution of in-service Inconel 718 superalloy repaired by linear friction welding

Residual stress analysis in linear friction welded in-service Inconel 718 superalloy via neutron diffraction and contour method approaches

training and professional development

December 12, 2025 – BlazeMaster Compatibility Webinar, BlazeMaster Fire Protection Systems, Online.

July 24-25, 2025 – Failure Analysis for Injection-Molded Plastic Products, Pennsylvania State University Behrend College, Erie, PA.

June 2025 – X-Ray Fluorescence Operator – Level 1, Natural Resources Canada, Vancouver, BC.
