Shawn P. Capser, Ph.D., P.E., PStat, CRE

Owner of and Consultant with
Praxis Reliability Consulting, LLC.
493 Birdie Court | Monroe, Michigan 48162
+1.734.770.5485 (mobile)
praxisrc.com | spcapser@praxisrc.com

Education

Doctor of Philosophy in Engineering — Aug 2015 – May 2018
University of Toledo — *Toledo, Ohio*
- Reliability Engineering
- Decision Theory and Value of Information
- Bayesian Statistics

Master of Science in Statistics — Aug 2015 – May 2020
University of Toledo — *Toledo, Ohio*
- Mathematical Statistics
- Probability Theory
- Statistical Inference

Master of Science in Industrial & Systems Engineering — Jun 2001 – Dec 2006
University of Michigan – Dearborn — *Dearborn, Michigan*
- Quality Engineering

Master of Science in Mechanical Engineering — Sep 1995 – Aug 1997
University of Toledo — *Toledo, Ohio*
- Fluid Mechanics
- Heat Transfer

Bachelor of Science in Mechanical Engineering — Sep 1990 – Aug 1995
University of Toledo — *Toledo, Ohio*

Licenses, Accreditations, Certifications

Licensed Professional Engineer — License #6201069773
State of Michigan — *Expires January 2025*

Accredited Professional Statistician (PStat®) — amstat.org - roster
American Statistical Association — *Expires July 2026*

Certified Reliability Engineer (CRE) — Certificate #36906
American Society for Quality — *Expires December 2028*

Operational Six Sigma Master Black Belt — Certificate #SC190MBB
International Quality Federation — *Since February 2004*

Design for Six Sigma Master Black Belt — Certificate #SC190DMBB
International Quality Federation — *Since March 2009*

Certificate Program for Using R
The Institute for Statistical Education (TISE) — *Received August 2015*
TISE is certified through the State Council of Higher Education for Virginia (SCHEV).

Traffic Crash Reconstruction for the Forensic Engineer
Northwestern University for Center Public Safety — *2019*

Professional Experience

Praxis Reliability Consulting, LLC. December 2012 – (present)
Owner, Consultant *Monroe, Michigan*

- Reliability Management for New Product Development
  - Integration of structured reliability management process within existing product development programs
  - Provide leadership in the application of key reliability tools and methods on product development efforts
- Provide support in developing design validation plans for components, assemblies, and complex, repairable systems
  - Design of Accelerated Life Testing (ALT) for components and assemblies
  - Development of Reliability Growth (RG) test plans for repairable systems
- Warranty Analysis and Forecasting
- Customer Usage Profiling
- Consulting in Applied Statistics
  - Statistical Inference, Design of Experiments, Regression, Categorical Data Analysis, and Logistic Regression
- Expert witness in litigation matters
  - Use data analysis and statistical methods to develop opinions with a reasonable degree of engineering and statistical certainty regarding likelihood of failure, potential cause(s) of failure, forecasting, and quantifying the "at-risk" population.
- Six Sigma Training and Certification
  - Certification of Green Belts, Black Belts, and Master Black Belts

Engineering Systems, Inc. May 2017 – June 2021
Sr. Consultant *Ann Arbor, Michigan*

- Expert witness in litigation matters

University of Toledo May 2018 – (present)
Adjunct Professor, Department of Mechanical Engineering *Toledo, Ohio*

- Probability & Statistics I (MIME4000)
- Probability & Statistics II (MIME4980)
- Design for Six Sigma (MIME4980/5980)
- Design of Experiments (GNEN6980/MIME6980)
- Reliability (MIME4690/5690)

International TechneGroup, Inc. February 2010 – February 2013
Sr. Reliability Engineering Consultant *Milford, Ohio*

- Consultant for reliability management in new product development

AVL Powertrain Engineering, Inc. January 2006 – February 2010
Technical Specialist in Statistical and Reliability Methods *Plymouth, Michigan*

- Reliability Engineering consultant for powertrain development

Ford Motor Compnay/Visteon Corporation May 1997 – December 2005
Design Engineer, Six Sigma Master Black Belt *Dearborn, Michigan*
Note: Visteon Corporation was an enterprise of Ford Motor Company between September 1997 and June 2000.

- Corporate Six Sigma Master Black Belt
- Reliability Engineer - Powertrain division (Fuel Storage & Delivery)
- Product Design and Release Engineer - Chassis Division

American Axle & Manufacturing October 1996 – May 1997
Test Engineer *Rochester Hills, Michigan*

Publications

"*Early Life Reliability Growth Testing with Non-Constant Failure Intensity*". Haselgruber, Nikloaus, Capser, Shawn P., Vignati, Giorgio I., International Conference on Industry 4.0 and Smart Manufacturing, Procedia Computer Science, Volume 180, 2021, Pages 608-617, https://doi.org/10.1016/j.procs.2021.01.283.

"*Compliance Testing for Locomotive LED Headlights and Auxiliary Lights, Phase II*". Meza-Arroyo, Manuel, Shibata, Peggy A., Sprague, James K., Capser, Shawn, U.S. Department of Transportation, Federal Railroad Administration, Publication/ Report Number: DOT/FRA/ORD20/42. 2020.

"*Sensitivity Analysis of Various Vehicle Dynamic Simulation Software Packages Using Design of Experiments (DOE)*", R. Matthew Brach, Shawn Capser, Emmanuel Jay Manuel, Joshua Rogers, Robert Bailey, Paper 2020-01-0639, SAE International, Warrendale, PA, 2020.

"*The Kinematic Analysis of Occupant Excursions and Accelerations during Staged Low Speed Far-Side Lateral Vehicle-to-Vehicle Impacts*". Shibata, P., Roberts, J., Sprague, J., Light, A., and Capser, S., SAE Technical Paper 2019-01-1030, 2019, https://doi.org/10.4271/2019-01-1030.

Assessing the Value of Information for Comparing Multiple, Dependent Design Alternatives. Capser, Shawn P. 2018. University of Toledo, Doctoral dissertation. OhioLINK Electronic Theses and Dissertations Center http://rave.ohiolink.edu/etdc/view?acc_num=toledo1520689318651851

"*Value of Information for Comparing Dependent Repairable Assemblies and Systems*". Capser, S.P. and Nikolaidis, E., SAE Technical Paper 2018-01-1103, 2018, doi:10.4271/2018-01-1103.

"*Assessing the Value of Information for Multiple, Correlated Design Alternatives*". Capser, Shawn and Efstratios, Nikolaidis, SAE 17IDM-0020 (2017).

"*Sensitivity Analysis of Simulated Postimpact Vehicle Motion Using Design of Experiments (DOE)*". Brach, R. and Capser, S., SAE Technical Paper 2018-01-0526, 2018, https://doi.org/10.4271/2018-01-0526.

"*THE-71G, 2007 AIAG Truck and Heavy Equipment Reliability Methods Guide, Reliability Program Implementation Plan and Report*". Version 1, Joe Anderson, John Bair, Doug Berg, Mark Braun, Shawn Capser, et al. Issued 12/2006.

"*The Influence of the Steering Gear Design into the Steering Wheel Nibble*". Capser, Shawn and Massera, Sergio, SAE Technical Paper 2003-01-3643, doi:10.4271/2003-01-3643, November 18, 2003.

Presentations

"*Making Conservative Estimates of Demonstrable Reliability When Model Parameters Are Unknown*". Capser, Shawn, Applied Reliability Symposium, San Diego, 2009.

Programming Languages

R/R Studio: proficient
Python: intermediate
LaTeX: advanced

Awards & Honors

Outstanding Leadership Team Award
Automotive Industry Action Group (AIAG) *2012*

Excellence in Oral Presentation Award
Society of Automotive Engineering (SAE), World Congress *2017*