



CV for Daniel J. Cowley, P.E.

Engineering Consultant

Address - FACETics LLC
42671 W Anne Ln
Maricopa, Arizona 85138

Mobile - (520) 840-1246
Email - dan.cowley@facet-ics.com

EDUCATION

Bachelor of Science, Mechanical Engineering, Iowa State University
Master of Business Administration, University of Northern Iowa

EXPERIENCE

I have forensic engineering experience in a wide variety of mechanical design, patent, performance, and safety issues, including injuries involving a broad range of vehicles, heavy agricultural machinery, both software and hardware failures, and accident reconstruction. My engineering background includes forty years as a mechanical engineer, thirty-three of which were with John Deere. This included experience in all areas of product research, refining product requirements, specifications, design, test, failure analysis, reliability growth management, manufacturing, and product support.

PROFESSIONAL LICENSE

Mechanical Engineer Licenses

- State of Arizona # 54486
- State of California # 36673
- State of Illinois # 062.070257
- State of Iowa # 23054
- State of Nevada # 022772

WORK HISTORY

2010 - FACETics LLC, Engineering Consultant, Maricopa, AZ
2004 - 2010 FACETics, INC., Consultant, Tempe, AZ
1999 - 2004 John Deere, Senior Test & Reliability Engineer and Project Manager, Moline, IL
1974 - 1999 John Deere, Engineer, Waterloo, IA
1972 - 1973 Sunstrand Corporation, Assembler, Ames, IA

PROFESSIONAL AFFILIATIONS

- American Society of Agricultural and Biological Engineers (ASABE) – Member
- American Society of Mechanical Engineers (ASME) – Member
- National Society of Professional Engineers (NSPE) – Member
- National Academy of Forensic Engineers (NAFE) –Member
- Society of Automotive Engineers International (SAE) – Member and Chair of the Mississippi Section 2001

PATENTS

Hitch Mechanism, US Patent 5,997,024

Mechanism Combining Articulation and Side-Shift, Patent Application Publication US 2021/0161261 A1

PUBLICATIONS

Cowley, Daniel. “Forensic Engineering Analysis of a Failed ROPS” . Journal of the National Academy of Forensic Engineers 37, no. 1 (January 8, 2021). Accessed January 8, 2021.

<https://journal.nafe.org/ojs/index.php/nafe/article/view/97>.

SPECIALIZED SKILLS

- SolidWorks, Alibre Design Expert
- Corrective Action Requirements
- Advanced Geometric Dimensioning and Tolerances
- Quality Plans

CONTINUING EDUCATION

- ASME IDETC/CIE 2021 Virtual Conference, Online (Due to COVID-19 restrictions); 8/16-19/2021
- NAFE 2021 Winter Conference, Online (Due to COVID-19 restrictions); 1/8-9/2021
- NAFE 2019 Summer Conference, Denver, Colorado; 7/26-28/2019
- Agricultural Equipment Technology Conference 2019, Louisville, Kentucky; 2/11-13/2019
- Agricultural Equipment Technology Conference 2018, Louisville, Kentucky; 2/12-14/2018
- NAFE 2018 Winter Conference, Phoenix, Arizona; 1/13-14/2018
- When Ethics Are Ignored: Lessons from Forensic Engineers, NSPE, Online; 3/6/2017
- SAE International, Reconstruction and Analysis of Rollover Crashes of Light Vehicles, Mesa AZ; 11/6/2015
- SAE International, Vehicle Crash Reconstruction Methods, Mesa, AZ; 11/2-4/2015
- Farm Equipment Fall Conference, Kansas City, MO; 10/26-30/2015
- Virginia Tech, Training in Human Subjects Protection, Online; 10/2/2015
- Southwestern Association of Technical Accident Investigators; Human Factor and Acceleration & Compliance Crash Testing, Phoenix, AZ; 9/11-12/2015
- NBI Teleconference, Effective Use of Experts in Civil Litigation, 6/24/2015
- Southwestern Association of Technical Accident Investigators Fall conference in Glendale, AZ; 9/25-27/2014
- Southwestern Association of Technical Accident Investigators, Collision Crash Sequence #35/Applied Physics & Rotational Mechanics/GM Ignitions & Rollover Analysis, Glendale, AZ; 9/25-27/14

- Farm Equipment Manufacturers Association, Spring Conference, San Antonio, TX; 04/07-09, 2014
- Farm Injury Litigation: A Plaintiff's Guide, Teleconference 04/02/2014
- Aras HD Version 2.2.0.0; Webinar; 03/14/14
- Southwestern Association of Technical Accident Investigators, Collision Crash Sequence #34/Fundamentals of Video Analysis/Case Study Using Video Analysis/Momentum and Simultaneous Equations/Tire Forensics, Glendale, AZ 9/27- 28/2013
- National Association of Subrogation Professionals (NASP), Residential Electrical Fires Webinar, 7/16/2013
- Aras HD, Aras 360 HD Advanced Computer Diagramming and Animation for Incident Reconstruction; 7/1-3/2013
- AZ Chapter of the International Association of Arson Investigators, Inc., 2013 Fuel Gas Fire Seminar; 3/18/13

WORK EXPERIENCE

FACETics - 2004 – Present (Full-time)

- Reviewed and opined on several patent infringement and invalidity matters, including the following example cases:
 - Feed mixers
 - Grain bin augers
 - After-market diesel engine oil coolers
 - Road construction equipment
 - Compact skid loaders
 - Brush cutters
 - Winch chain drive sprockets
- Conducted forensic investigation, failure analysis, standard and regulation compliance reviews, and testified under oath, as an expert witness, for a variety of products, including the following example cases:
 - Tractor roll-overs
 - Tractor runovers
 - Tractor - mower thrown objects
 - Trailer runovers
 - Produce truck injuries
 - Sod harvester amputations
 - Rotary dairies drive wheel crushes
 - Packaging machines fraud
 - Automotive improper lane collisions
 - Automotive sunroof leaks
 - Mining/commercial soil screeners
 - Backhoe loaders

Augspurger Komm Engineering, Inc. - 2012 - 2016 (Full-time)

- Conducted forensic investigation, failure analysis and testified under oath, as an expert witness, for a variety of products, including the following example cases:
 - Over-the-road truck transmission and wheel hub failure causation
 - Patent infringement and validity of snowmobile frame and engine cooling systems
 - Proper commissioning of large hay press and shot-peening equipment
 - Agricultural machinery guarding and warning
 - Heavy construction equipment hydraulic system

- Utilized Failure Modes and Effects Analysis (FMEA) and Fault Tree Analysis (FTA)
- Generated 3D printed models for compelling courtroom exhibits
- Provided technology leadership for forensic scene data acquisition and analysis tools

John Deere Werke Mannheim – 2009 (Full-time)

- Refined early requirements for mechatronic systems design for Agricultural products
- Specified component-level requirements from system needs
- Ensured the traceability of each requirement throughout the design, development and test cycle managed by using Information Technology tools like PTC's Integrity or IBM's Rational DOORS

Maricopa Unified School District - 2010-2011 (Volunteer)

- Enabled a method to capture student goals and objectives
- Developed the academic plan for students to meet their goals and objectives
- Proposed an infrastructure of courses, facilities, and remediation to match student goals and objectives
- Developed the elements of and participated in an implementation of the Education and Career Action Plan for the school district as mandated by the state of Arizona in rule R7-2- 302.0 (Approved on February 25, 2008)

ESG Engineering - 2008 – 2009 (Full-time)

- Designed, developed, procured, fabricated, and provided details for a variety of vehicular and solar collector structural components
- Designed, developed, and built the first Elio Motors automotive front and rear suspension systems using SolidWorks and CarSIM, among other tools
- Analyzed and defined welding and joining specs for ASU stadium parking ramp top sun-tracking solar structure and grid consistent with standards of the industry
- Invented an internal-rim-and-tire inflation pump to maintain tire pressure for over-the-road trucks powered by wheel rotation, alone

ArmorWorks – 2008 (Full-time)

- Demonstrated production efficiency improvements; ISO 9001 Certification
- Developed shop-floor level control documentation for body armor
- Participated on a team to select a Product Data Management (PDM) system for Computer-Aided Design (CAD) files to meet ISO9001 Certification requirements
- Developed and maintained a central library of CAD-generated waterjet cutting templates for production tooling

John Deere Werke Mannheim – 2004-2007 (Full-time)

- Improved the quality of product development cycle documentation
- Developed and memorialized a framework to provide product requirements traceability, be it by change, function, responsibility, specification, system, location and/or configuration
- Created a method to automate the compilation of the European Community "Certificate of Conformity" from appropriate engineering documentation

John Deere – 1974 - 2004

- Investigated, specified, and implemented a monitoring system that provided automatic notification alerts and initiated immediate corrective action for a major web based PDM application
- Compiled, analyzed, and reviewed Precision Farming reliability growth information with various levels of management, proposing appropriate corrective action to meet their goals
- Conducted hands-on (unit, system, and acceptance) testing of the Precision Farming solutions in controlled laboratories and in the field with farmer-partners prior to production release
- Conducted extensive product testing with farming partners to improve the software code coverage during the testing season. Final product commissioning for production manufacturing by testing all support documentation
- Introduced and conducted the first formal FMEA on software related products in the division
- Introduced and staffed a formal testing organization into the Precision Farming group, which among other things resulted in a successful introduction of John Deere's StarFire™ Global Positioning Satellite (GPS) receiver with both WAAS and SF2 correction signal to within a 10-inch accuracy. Automotive CAN-bus networks and embedded-software were being testing for the first time by a formal testing team, separate from the developers, themselves, at John Deere
- Led the build-and-test team responsible for testing full-vehicle prototypes of new launch products.
- Identified engineering design alternatives when the procurement of parts was delayed, minimizing the impact on the prototype build schedule. Testing activities included hands-on live rollover and laboratory crush tests for operator encroachment zones, wind tunnel, and cold room, as well as general field testing
- Led the chassis modular-frame design engineering activities for a new tractor program
- Conducted FMEA's early on to build in product reliability from the beginning
- Interacted with all the other vehicle and component design teams to complete the designs on schedule and within program goals
- Supported factory floor production start-up by providing engineering decisions on the shop floor during factory change over
- Designed products for the automotive and embedded electronics industry – 3D linkages, such as steering or hitching system components and controls; plate and steel, sheet metal forming and welding such as 55 gal. fuel tanks for tractors and cab frames, hoods, and grilles; forging, casting with precision machining for hitching system components; plastic-molded components for styling and cab interiors or electronic component cases
- Coordinated engineering CADAM and CATIA and Product Life-cycle Management application rollouts in synchronized global engineering locations without the aid of modern federated systems
- Conducted warranty investigation on early production units. Identified specific failure modes for various components.

Sunstrand - 1974

Assembled, documented tear downs, and rebuilt 300 pilot hydro-mechanical transmissions for comprehensive reliability study primarily targeted for the short-haul trucking industry, i.e., concrete, garbage and delivery trucks