Adam W. Duran, P.E., PMP

Assistant Teaching Professor

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EDUCATION

M.S., Engineering and Technology Management 2016
Colorado School of Mines, Golden, CO

M.S., Engineering (Mechanical Specialty) 2011
Colorado School of Mines, Golden, CO

B.S., Engineering (Mechanical Specialty) 2009
Colorado School of Mines, Golden, CO

LICENSURE & CERTIFICATIONS

- **Professional Engineer (P.E.)**, State of Colorado, License No. PE.0061606 (2022)
- **Project Management Professional (PMP)**, Project Management Institute, ID 3726574 (2024)

SCHOLARLY PROFILE

- **Peer-reviewed publications and technical reports:** 30+
- **Google Scholar citations:** 1,000+ **h-index:** 17 **i10-index:** 20
- **Career competitive funding (PI / Proposal Lead):** $10.5M+
  Major components include: $6.3M as Director, Shell GameChanger Accelerator (GCxN); $2M as PI, Fleet DNA database; $1M+ across DOE FOA vehicle technology awards at NREL; $500k+ proposal portfolio at QS-2; $520k+ DOE EcoCAR Innovation Challenge and $255k total BWC program value at Mines.
- **Courses taught at Mines:** 14 distinct courses
- **Courses developed or co-developed:** 8

ACADEMIC APPOINTMENTS

Assistant Teaching Professor *August 2022 – Present*
Department of Mechanical Engineering, Colorado School of Mines Golden, CO

Teaching and Program Leadership:

- Develop and teach undergraduate and graduate courses in mechanical engineering, vehicle dynamics, aerospace systems engineering, combustion, and financial engineering; maintain 18+ credit annual teaching load (peak 21.0 FDR credits, CY23).
- Co-led expansion of the Mines Automotive Engineering Program to 252 track-declared undergraduates (17% of ME track-declared students); program ranks 2nd within ME by enrollment, behind only Aerospace. Student-to-faculty ratio: 126:1 (with only two core faculty).
- Capstone Leadership Team, ME Co-Representative (Fall 2025 – Present): program-level planning, delivery standards, and coordination with the Industry Partnership Board Steering Committee.
- MEGN 300 Course Coordinator (Spring 2025): aligned multi-section instruction; mentored new instructors Kuska and Thomas.

Service and Coordination:

- FE Exam Review Coordinator (Spring 2023 – Present): organizes campuswide review each semester; recruits instructors; personally teaches Math, Prob/Stats, Ethics, and Materials Science sessions.
- Lead PI, DOE Battery Workforce Challenge (Spring 2024 – Present); Lead PI, DOE EcoCAR Innovation Challenge (Spring 2026 – Present); Co-PI: Prof. P. Brodsky. See Grants section.

Adjunct Instructor *2016 – 2022*
Colorado School of Mines (Multiple Departments) Golden, CO

- Co-developed and taught MEGN 417 (Vehicle Dynamics) and MEGN 455 (Aerospace Systems Engineering) in the Department of Mechanical Engineering.
- Co-developed launch-year curriculum for the UHSP Grandey Honors Engineering program (HNRS 110/120 Leadership by Design); built SolidWorks CAD curriculum and facilitated 3+ workshops of ∼100 students/session.
- Taught HNRS 105/115 IDEAS and EDS 151 Cornerstone Design; served as Project Advisor and Client for EDS 491/492 Senior Capstone Design teams.

PROFESSIONAL EXPERIENCE

Senior Engineer *2020 – 2022*
Quantitative Scientific Solutions (QS-2) Arlington, VA (Remote)

- Led research on automated driving systems (ADS) and advanced driver assistance systems (ADAS), covering enabling technologies, policy, and standards.
- Led proposal development process from scoping through work capture and execution; captured and led a portfolio in excess of $500k cumulative funding.
- Spearheaded cultivation of partnerships and stakeholder engagement activities including workshops and conferences; managed project budgets and staff.

Program Manager, Innovation & Entrepreneurship Center *2018 – 2020*
National Renewable Energy Laboratory (NREL) Golden, CO

- Cofounder and Director, Shell GameChanger Accelerator Powered by NREL (GCxN): directed a $6.3M clean technology startup accelerator with full responsibility for program strategy, P&L, partner agreements, and participant mentorship.
- Portfolio outcomes (as of 2025 Annual Report): $1.048B raised by cohort companies, 954 new startup hires (374% growth since 2022), average TRL progression from 4.1 to 5.9, $140:1 leverage ratio on Shell project funding, 30 companies in portfolio.
- Managed contractual relationships with Shell International and NREL; assembled startup cohorts through rigorous down-selection; built and led a team of technical, project management, and communications professionals.

Senior Research Engineer, Transportation Data Science *2014 – 2018*
NREL Transportation & Hydrogen Systems Center Golden, CO

- Led technical development and deployment of NREL's **Fleet DNA** commercial vehicle database ($2M, 5 years): a national-scale repository for medium- and heavy-duty vehicle data used by fleet managers, OEMs, and researchers nationwide.

- PI for multiple DOE-funded projects: Class 8 truck electrification pathways (Cummins TSA, $250k); multi-modal freight energy optimization (ORNL, $250k); multi-speed transmission development (Eaton; DOE FOA, $250k); extended-range Class 6 truck platform (Cummins/PACCAR; DOE FOA, $250k).
- Applied statistical analysis and machine learning to develop duty cycles incorporated into EPA's Phase II Greenhouse Gas regulations for commercial vehicles.

Research Engineer *2009 – 2014*
NREL Transportation & Hydrogen Systems Center Golden, CO

- Managed City of Indianapolis Refuse Truck Fleet Evaluation (Clean Cities program): field data collection, drive cycle analysis, and simulation across HEV, HHV, and CNG options.
- Developed large-scale data analysis capabilities and published quarterly reports for a national EV data collection project (ARRA funding).

Student Research Assistant *2008 – 2009*
NREL Transportation & Hydrogen Systems Center Golden, CO

- Developed NREL's DRIVE^{TM} tool: GUI-based duty cycle analysis and generation tool; commercialized via licensing and applied to numerous national fleet evaluation projects.

TEACHING

Courses Taught

† *Indicates course developed or co-developed by the instructor.*

As Assistant Teaching Professor, August 2022 – Present:

- **MEGN 417/527**†: Vehicle Dynamics and Powertrain Systems (UG/G) (F22, F23, F24, F25)
- **MEGN 455**†: Aerospace Systems Engineering (UG) (F22, F23, F24)
- **MEGN 456**†: Space Operations and Mission Design (UG) (S23, S24, S25)
- **MEGN 566**†: Combustion, Online Graduate Elective (G) (F23, F24)
- **MEGN 301**†: Mechanical Integration and Design (UG) (SSI25, S26, SSI26)
- **MEGN 300**: Instrumentation and Automation (UG) (S23, S24; Course Coordinator, S25)
- **MEGN 200**: Introduction to Mechanical Engineering: Programming and Hardware Interface (UG) (F25)
- **EBGN 599A**†: Financial Engineering for Engineers (G) (S26)
- **EDS 491/492**: Senior Capstone Design (UG) (F22, F23, F24, F25; S23, S24, S25, S26)
- **MEGN 598/599**: Independent Study (UG/G) (multiple students; see Student Mentoring)

As Adjunct Instructor, August 2016 – August 2022:

- **MEGN 417**†: Vehicle Dynamics and Powertrain Systems (co-developed with Prof. Bogin)
- **MEGN 455**†: Aerospace Systems Engineering (co-developed with Prof. Jennifer Erickson)
- **HNRS 105/115**: IDEAS I & II (co-taught)
- **HNRS 110/120**†: Leadership by Design I & II (co-developed, launch year)
- **EDS 491/492**: Senior Capstone Design (Project Advisor)
- **EDS 151**: Cornerstone Design

Course Development and Pedagogical Innovations

- **Experiential Mastery-Based Learning (EMBL) Framework** (MEGN 417/527): specifications-based competency system with six Course Learning Standards, four mastery levels, bundle-based grade determination, and a structured revision token system. Grounded in Bloom (1968), Nilson (2015), Wiggins & McTighe (2005), and Kolb (1984); refined through Trefny Engineering Learning Fellows peer review.
- **Scenario-Based Industry Project Formats**: MEGN 456 uses a semester-long NASA RFP mission design project (orbital mechanics, sensor trade studies, full SE documentation package); MEGN 455 uses a live SBIR Phase I white paper format, mirroring federal proposal practice.
- **EBGN 599A Financial Engineering** (new course, S26): 16-week curriculum developing professional quantitative finance skills in Python, including walk-forward validation, Mahalanobis distance regime detection, and tail hedging.
- **Zero Textbook Cost (ZTC)**: all required texts for MEGN 417, MEGN 566, and MEGN 301 available at no cost through Mines Library; MEGN 456 supplementary readings ZTC-designated.
- **MEGN 566 Online Redesign**: iterative redesign across two offerings (F23, F24) testing hypotheses about asynchronous self-regulation for working professionals; introduced synchronous check-ins, worked examples, and revised pacing.

Teaching-Related Professional Development

2025–26: Trefny Center Engineering Learning Fellow; KEEN Crescendo Program (1 of 5 national members); KERN Community Catalysts, Cohort 13 (EMxAI Working Group Leader); Human-Centered AI Intensive (Trefny); KEEN National Conference; KERN/KEEN EMxAI Summit (Presenter); KEEN EML Mini-Workshop (produced activity card); KERN Making with AI Workshop (produced activity card); Teaching with TAs Workshop (Trefny).

2024: Alternative Grading Intensive (Trefny); Princeton Combustion Summer School; Discipline-Based Education Research (DBER) Workshop Series.

2023–24: Trefny New Faculty Learning Community; Foundations of Course Design Follow-Up Training; Peer Observation with Teaching Prof. Chris Shorey; ASIST Suicide Intervention Workshop.

2022: Trefny EFOL Training (MEGN 566 Online); Trefny ELFCD Training (MEGN 456); Faculty Standards Review Committee Training (Mines Online); COPUS Classroom Observation (confirmed student-centered practice); National Collegiate Honors Conference (NCHC) Participant (2021).

GRANTS & EXTERNAL FUNDING

Active Federal and Industry Grants (Mines Appointment)

- **DOE EcoCAR Innovation Challenge** (awarded Spring 2026, multi-year, ≈$520,000)
  Lead PI: Duran; Co-PI: Prof. P. Brodsky
  One of DOE's flagship Advanced Vehicle Technology Competition programs; Mines selected as one of a limited number of participating institutions nationwide.
- **DOE / Stellantis Battery Workforce Challenge** (2023 – Present)
  DOE/Stellantis base grant: $147,000 (3 years); 50% PI allocation; Co-PI: Prof. P. Brodsky
  Chevron industry sponsorship: $20,000
  Student travel stipends (through Mines): $35,600
  Competition prizes (awarded to students): $32,500
  Total BWC Program Value: $255,100
  Additional significant in-kind value from software (GT-Suite, Siemens), hardware (Analog Devices,

Dana), and vehicle donation (Dodge RAM ProMaster Van) not included.
Results: 1st place nationally Year 1 (2023–24); 4th place nationally Year 2 (2024–25); more than a dozen technical and project management awards.

Pedagogical and Internal Grants (Mines Appointment)

- **Mines Technology Fee**: Shock Dynamometer & Spring Rater (Spring 2023): $11,900; with Prof. P. Brodsky
- **Mines Technology Fee**: RC Cars & Batteries (Spring 2025): $5,900; with Prof. P. Brodsky
- **Mines Technology Fee**: RC Dyno & Battery Cycler (Fall 2025): $13,800; with Prof. P. Brodsky
- **KEEN EML Mini-Grant** (Spring 2025): $600; produced two activity cards disseminated to the national KEEN community
- **Mines Library Zero Textbook Cost Initiative**: MEGN 417, MEGN 456, MEGN 566, MEGN 301 (2022 – Present)

Prior Career Funding (Pre-Mines, NREL and QS-2)

- Shell GameChanger Accelerator (GCxN), Director: $6.3M (5 years)
- Fleet DNA Commercial Vehicle Database, PI: $2M (5 years)
- Exploring Pathways to Class 8 Truck Electrification (Cummins TSA), PI: $250k
- Multi-Modal Freight Energy Optimization (ORNL collaboration), PI: $250k
- Development of Multi-Speed Transmission for PDEV (Eaton; DOE FOA), NREL PI: $250k
- Development of Extended-Range ETREE Truck (Cummins/PACCAR; DOE FOA), NREL PI: $250k
- Automated Driving Systems Research Portfolio (QS-2), Proposal Lead: $500k+
- **Total career competitive funding (PI / Proposal Lead): $10.5M+**

PUBLICATIONS

*Author's name in **bold**. Listed in reverse chronological order within each category.*

Journal Articles (Peer-Reviewed)

1. Mistry, A.N., Brodsky, P., Brickey, A.J., **Duran, A.**, Mozur, E., Rajasegar, R., Jackson, G., DeCaluwe, S.C., Kee, R.J., O'Hayre, R., Newman, A., Braun, R., Bazilian, M., & Sullivan, N.P. "Not-So-Quick and Not-So-Dirty Solutions to Decarbonize Off-Road Vehicles." *ACS Energy Letters*, 2025, 10(11), 5322–5327. DOI: 10.1021/acsenergylett.5c02459
2. Mistry, A.N., Brodsky, P., **Duran, A.**, Mozur, E., Rajasegar, R., Brickey, A.J., Newman, A., Ingram, B.J., Braun, R., O'Hayre, R., Jackson, G., DeCaluwe, S.C., Kee, R.J., Bazilian, M., & Sullivan, N.P. "Electrifying Off-Road Vehicles: Is 1000 Wh/kg Enough?" *ACS Energy Letters*, 2024, 9(8), 4053–4058. DOI: 10.1021/acsenergylett.4c01276
3. Miller, E. and **Duran, A.** "A Deterministic Multivariate Clustering Method for Drive Cycle Generation from In-Use Vehicle Data." *SAE Technical Paper* 2021-01-0395, 2021. DOI: 10.4271/2021-01-0395
4. **Duran, A.**, Li, K., Kresse, J., & Kelly, K. "Development of 80 and 100 Mile Work Day Cycles Representative of Commercial Pickup and Delivery Operation." *SAE Technical Paper* 2018-01-1192, 2018. DOI: 10.4271/2018-01-1192
5. **Duran, A.**, Phillips, C., Perr-Sauer, J., Kelly, K., & Konan, A. "Leveraging Big Data Analysis Techniques for US Vocational Vehicle Drive Cycle Characterization, Segmentation, and Development." *SAE Technical Paper* 2018-01-1199, 2018. DOI: 10.4271/2018-01-1199 *(Drive cycles adopted by U.S. EPA in GHG Phase 2 rulemaking.)*
6. Lammert, M., Bugbee, B., Hou, Y., Mack, A., Muratori, M., Holden, J., **Duran, A.**, & Swaney,

E. "Analysis of Opportunities for Truck Platooning from Telematics Data." *SAE Technical Paper* 2018-01-1083, 2018. DOI: 10.4271/2018-01-1083

7. Muratori, M., Holden, J., Lammert, M., **Duran, A.**, et al. "Potentials for Platooning in U.S. Highway Freight Transport." *SAE International Journal of Commercial Vehicles*, 10(1), 2017. DOI: 10.4271/2017-01-0086
8. Miller, E., Konan, A., & **Duran, A.** "Bayesian Parameter Estimation for Heavy-Duty Vehicles." *SAE Technical Paper* 2017-01-0528, 2017. DOI: 10.4271/2017-01-0528
9. Wang, L., **Duran, A.**, Kelly, K., Konan, A., et al. "The Evaluation of the Impact of New Technologies for Different Powertrain Medium-Duty Trucks on Fuel Consumption." *SAE Technical Paper* 2016-01-8134, 2016. DOI: 10.4271/2016-01-8134
10. Wood, E., **Duran, A.**, & Kelly, K. "EPA GHG Certification of Medium- and Heavy-Duty Vehicles: Development of Road Grade Profiles Representative of US Controlled Access Highways." *SAE International Journal of Commercial Vehicles*, 9(2):94–104, 2016. DOI: 10.4271/2016-01-8017
11. Marcinkoski, J., Vijayagopal, R., Kast, J., & **Duran, A.** "Driving an Industry: Medium and Heavy Duty Fuel Cell Electric Truck Component Sizing." *World Electric Vehicle Journal*, 8(1), 2016.
12. Wang, L., **Duran, A.**, Gonder, J., & Kelly, K. "Modeling Heavy/Medium-Duty Fuel Consumption Based on Drive Cycle Properties." *SAE Technical Paper* 2015-01-2812, 2015. DOI: 10.4271/2015-01-2812
13. Wang, L., Kelly, K., Walkowicz, K., & **Duran, A.** "Quantitative Effects of Vehicle Parameters on Fuel Consumption for Heavy-Duty Vehicle." *SAE Technical Paper* 2015-01-2773, 2015. DOI: 10.4271/2015-01-2773
14. Lopp, S., Wood, E., & **Duran, A.** "Evaluating the Impact of Road Grade on Simulated Commercial Vehicle Fuel Economy Using Real-World Drive Cycles." *SAE Technical Paper* 2015-01-2739, 2015. DOI: 10.4271/2015-01-2739
15. Lammert, M., Burton, J., Sindler, P., & **Duran, A.** "Hydraulic Hybrid and Conventional Parcel Delivery Vehicles' Measured Laboratory Fuel Economy on Targeted Drive Cycles." *SAE International Journal of Alternative Powertrains*, 4(1), 2015. DOI: 10.4271/2014-01-2375
16. **Duran, A.**, Ragatz, A., Prohaska, R., Kelly, K., & Walkowicz, K. "Characterization of In-Use Medium Duty Electric Vehicle Driving and Charging Behavior." *IEEE International Electric Vehicle Conference (IEVC)*, 2014. DOI: 10.1109/IEVC.2014.7056213
17. Lammert, M., **Duran, A.**, Diez, J., Burton, K., et al. "Effect of Platooning on Fuel Consumption of Class 8 Vehicles Over a Range of Speeds, Following Distances, and Mass." *SAE International Journal of Commercial Vehicles*, 7(2):626–639, 2014. DOI: 10.4271/2014-01-2438
18. Wood, E., Burton, E., **Duran, A.**, & Gonder, J. "Contribution of Road Grade to the Energy Use of Modern Automobiles Across Large Datasets of Real-World Drive Cycles." *SAE Technical Paper* 2014-01-1789, 2014. DOI: 10.4271/2014-01-1789
19. Burton, J., Walkowicz, K., Sindler, P., & **Duran, A.** "In-Use and Vehicle Dynamometer Evaluation and Comparison of Class 7 Hybrid Electric and Conventional Diesel Delivery Trucks." *SAE International Journal of Commercial Vehicles*, 6(2), 2013. DOI: 10.4271/2013-01-2468
20. **Duran, A.** & Walkowicz, K. "A Statistical Characterization of School Bus Drive Cycles Collected via Onboard Logging Systems." *SAE International Journal of Commercial Vehicles*, 6(2), 2013. DOI: 10.4271/2013-01-2400
21. Lammert, M., Walkowicz, K., **Duran, A.**, & Sindler, P. "Measured Laboratory and In-Use Fuel Economy Observed over Targeted Drive Cycles for Comparable Hybrid and Conventional Package Delivery Vehicles." *SAE Technical Paper* 2012-01-2049, 2012. DOI: 10.4271/2012-01-2049
22. **Duran, A.** & Earleywine, M. "GPS Data Filtration Method for Drive Cycle Analysis Applications."

SAE Technical Paper 2012-01-0743, 2012. DOI: 10.4271/2012-01-0743

Book Chapters

1. **Duran, A.** "Hydrogen Dreams, False Claims: The Ethical Collapse of Nikola Corporation." Book chapter case study, Elgar Publishing, 2026.

Conference Papers and Proceedings

1. Hou, Y., Moore, A.M., **Duran, A.W.**, Walkowicz, K.A., & Smith, D. "A Hybrid Tour-Based Model for Energy Analysis of Multi-Modal Intra-City Freight: A Case Study of Autonomous Electric Vehicles." *98th Annual Meeting of the Transportation Research Board (TRB)*, Washington, D.C., January 2019.
2. Prohaska, R., **Duran, A.**, & Ragatz, A. "Statistical Characterization of Medium-Duty Electric Vehicle Drive Cycles." *EVS28: 28th International Electric Vehicle Symposium and Exhibition*, May 2015.

Technical Reports

1. Kimmel, S., **Duran, A.**, Robertson, J., Vanderveen, M., & Wendling, B. (2021). *Physical and Digital Infrastructure for Connected and Automated Vehicles (CAV): Code Framework.* Canadian Standards Association, Toronto, ON.
2. Perr-Sauer, J., **Duran, A.**, & Phillips, C. (2020). *Clustering Analysis of Commercial Vehicles Using Automatically Extracted Features from Time Series Data.* NREL/TP-2C00-74212. nrel.gov/docs/fy20osti/74212.pdf
3. **Duran, A.**, Phillips, C., Konan, A., & Kelly, K. (2017). *The Development of Vocational Vehicle Drive Cycles and Segmentation.* NREL/TP-5400-65921. nrel.gov/docs/fy17osti/65921.pdf
4. Konan, A., **Duran, A.**, Kelly, K., Miller, E., & Prohaska, R. (2017). *Characterization of PTO and Idle Behavior for Utility Vehicles.* NREL/TP-5400-66747. nrel.gov/docs/fy17osti/66747.pdf
5. Wood, E., **Duran, A.**, Burton, E., Gonder, J., & Kelly, K. (2015). *EPA GHG Certification of Medium- and Heavy-Duty Vehicles: Development of Road Grade Profiles Representative of US Controlled Access Highways.* NREL Report No. TP-5400-63853.
6. Thornton, M., **Duran, A.**, Ragatz, A., Cosgrove, J., Sindler, P., Russel, R., & Johnson, K. (2015). *Data Collection, Testing, and Analysis of Hybrid Electric Trucks and Buses Operating in California Fleets.* NREL Report No. TP-5400-62009.
7. Wood, E., Burton, E., **Duran, A.**, & Gonder, J. (2014). *Appending High-Resolution Elevation Data to GPS Speed Traces for Vehicle Energy Modeling and Simulation.* NREL Report No. TP-5400-61109.
8. **Duran, A.**, Burton, E., Kelly, K., & Walkowicz, K. (2014). *Fleet DNA Project: Data Dictionary for Public Download Files.* NREL/TP-5400-62572. nrel.gov/docs/fy14osti/62572.pdf

SOFTWARE, TOOLS, & INTELLECTUAL PROPERTY

1. **NREL DRIVE™ Tool**: Copyright: "Duty Cycle Software Model," 2008. Alliance for Sustainable Energy, LLC. TXu001725619. NREL Record of Invention CR/09-61.
2. **NREL Fleet DNA Database**: NREL Record of Invention SWR-13-00027, 2013.
3. **NREL Road Grade Analysis Algorithms**: NREL Record of Invention SWR-13-00032, 2013.
4. **Vehicle Fuel Economy Estimation Tool**: NREL Record of Invention SWR-14-21.
5. **Parameter Estimator for Engineering Systems**: NREL Record of Invention SWR-16-38.
6. **Clustering Analysis Code Artifact**: NREL Record of Invention SWR-21-96.

PRESENTATIONS & INVITED TALKS

1. **Duran, A.** "Entrepreneurial Mindset in Engineering Education." KEEN Crescendo Program, University of the Pacific, March 2026.
2. **Duran, A.** "Co-Creating with AI: New Frontiers in Teaching and Design." Flash Talk, *Generative AI and Human Futures: A Summit on Teaching and Learning at Mines*, Colorado School of Mines, Fall 2025.
3. 15+ KEEN Entrepreneurial Mindset Learning community activity cards published (2025). Disseminated to national KEEN network.
4. KERN/KEEN EMxAI Summit, Presenter (February 2025).
5. SAE World Congress 2018: Leveraging Big Data Analysis Techniques for US Vocational Vehicle Drive Cycle Characterization, Segmentation, and Development.
6. SAE World Congress 2018: Development of 80 and 100 Mile Work Day Cycles Representative of Commercial Pickup and Delivery Operation.
7. 28th Coordinating Research Council Workshop 2018: Leveraging Big Data Analysis Techniques for US Vocational Vehicle Drive Cycle Characterization.
8. DOE Annual Merit Review 2017: Opportunities for Improving the Energy Efficiency of Multi-Modal Intra-City Freight Movement.
9. SAE Commercial Vehicle Congress 2016: EPA GHG Certification of Medium- and Heavy-Duty Vehicles: Development of Road Grade Profiles.
10. Beyond Light Duty Vehicle Electrification of Goods and People Movement: Workshop 2016.
11. DOE Annual Merit Review 2015: Fleet DNA Phase 1 Refinement & Phase 2 Implementation.
12. SAE Commercial Vehicles Congress 2015: Evaluating the Impact of Grade on Simulated Commercial Vehicle Fuel Economy.
13. IEEE International Electric Vehicle Conference 2014: Characterization of In-Use Medium Duty Electric Vehicle Driving and Charging Behavior.
14. DOE Annual Merit Review 2014: Poster Session, Fleet DNA.
15. 2014 NTEA Green Truck Summit: Data Driven Decision Making Tools.
16. DOE Annual Merit Review 2013: Poster Session, Fleet DNA.
17. SAE Commercial Vehicles Congress 2012: Vehicle Duty Cycles and Their Role in Design and Evaluation of Advanced Vehicle Technologies.
18. SAE World Congress 2012: GPS Data Filtration Method for Drive Cycle Analysis Applications.
19. Hybrid Truck Users Forum 2012: The What, Why, and How of Drive Cycles.
20. Automotive UI 2012, Tutorial: Introduction to Onboard Vehicular GPS Data Collection, Analysis, and Reporting.

STUDENT MENTORING

Graduate Thesis and Dissertation Committees

- M.S. Thesis Co-Advisor: Aidan Strang, "Dynamics and Robotic Stabilization of a Centrifugal Hydroponic System" (Spring 2026 – Present; active)
- M.S. Thesis Committee Member: Daniel Azbell; successfully defended Spring 2026
- Ph.D. Committee Member: Kayden Tucker (Spring 2025 – Present; active)
- Ph.D. Committee Member: Finnegan Wilson (Spring 2024 – Present; active)

Independent Study Students (MEGN 598/599)

18 students supervised since August 2022; grouped by research area.

Vehicle Dynamics and Automotive Systems (7 students):

- Quin Guy: Chassis Dynamometer Redesign for EV RC Cars (S23)
- Jacob Chwialkowski: Exploration in Damping Testing (Su23)
- Isaac Wheelis: Two-Wheel Vehicle Dynamics (S25)
- Kyle Coleman: Engine Laboratory Design & Management (S25)
- Jack Loveland: Exploration of Trailer Dynamics (S25)
- Louis Bartels: Shock Dynamometer Research, MEGN 598 (S25)
- Ben Stern: Shock Dynamometer Research, MEGN 598 (S25)

Battery Workforce Challenge / Competition Program Management (4 students):

- Colten Kristie: BWC Program Management (S24)
- Noam Ayalon: BWC Project Management; earned CAPM certification (F24)
- Wesley Swieter: Competition Project Management (S25); earned PMP certification
- Viviana Nelson: Competition Project Management (S26)

Space Systems and Mission Design (1 student):

- Sammy Shoun: Space Operations & Mission Design (Su23)

Current Graduate Research and Independent Study (F25–S26):

- Aidan Strang: MS Thesis co-advisor, "Dynamics and Robotic Stabilization of a Centrifugal Hydroponic System" (F25–present)
- Aaron Puffenberger: Vehicle Dynamics Research, MEGN 599 (F25, S26)
- Christopher Dahlgren: Vehicle Systems Research, MEGN 599 (F25, S26)
- Leah Schartz: Shock Dynamometer Research, MEGN 599 (F25)
- Eric Bueno Corral: Suspension Design and Modeling, MEGN 599 (S26)
- Connor Wilde: Financial Engineering Independent Study, EBGN 599 (S26)

Student Group Advising

- **Battery Workforce Challenge (BWC)** (Summer 2023 – Present), Lead PI (Spring 2024 – Present). Co-advisor: Prof. P. Brodsky. 1st place nationally, Year 1 (2023–24); 4th place nationally, Year 2 (2024–25); more than a dozen technical and project management awards across both years; $80,100+ in student prizes and stipends; 2 MS and 3 BS students supported per program year.
- **Formula SAE** (Fall 2022 – Present), Co-advisor with Prof. P. Brodsky. 53rd of 120 international teams (2025 competition); completed all dynamic events including endurance race for the first time since 2016; team internship rate exceeding 90% (Summer 2024).

Undergraduate Academic Advising

Advising load grew from 15 declared students (CY22) to 57 (CY24), tracking with growth of the Mines Automotive Engineering track. Write 5–10 recommendation letters per academic year.

Senior Capstone Design Mentoring

Served as Client (≈22 projects), Project Advisor (≈5 projects), and Technical Advisor (≈6 projects) across 30+ teams across 8 semesters (F22–S26). Notable project outcomes include 1st place (EV Powertrain Swap, F23) and 2nd place finishes (EV Powertrain Swap, F24; NASA Lunabotics, F23).

SERVICE

Departmental Service (Mines ME)

Leadership roles:

- Capstone Leadership Team, ME Co-Representative (Fall 2025 – Present)
- Lead Faculty, ME Aerospace Elective Track (Fall 2025 – Present)
- FE Exam Review Coordinator and Lead Instructor (Spring 2023 – Present)

Committee service:

- ME Mechatronics Faculty Search Committee (Fall 2024)
- ME Solid Mechanics Faculty Search Committee (Spring 2026)
- ME Undergraduate Recruitment Committee (Fall 2024, Spring 2025)
- EDS Teaching Associate Professor Search Committee (Spring 2023)
- ME Online Programs Committee (Fall 2022)
- ME Wellness Committee (August 2022 – Present)
- Undergraduate Curriculum Committee, Stand-In Representative (F22–Sp23)

Mentoring and curriculum support:

- Instructor Mentoring: Jorge Ramirez (MEGN 300, Sp24); Allison Caster (MEGN 466, Sp24); Elijah Kuska and Siby Thomas (MEGN 300, Sp25); Jennifer Erickson (MEGN 455/456)
- UHSP SolidWorks Curriculum Development: 3+ workshops, ∼100 students/session (2021–2023)

University Service (Mines)

- Capstone Industry Partnership Board Steering Committee (Fall 2025 – Present)
- GGE Promotion and Tenure Committee, External Member (Fall 2025)
- Presidential Committee for Faculty Success and Retention (Spring 2024 – Spring 2025)
- Faculty Handbook Review, IP and Copyright Sections 10.1/10.3 (Fall 2023)
- Faculty Senate Online Standards Committee (Fall 2022)
- Mines Online/OLED Course Reviewer: 12+ courses (2022–2026)
- Judge, Capstone Design Showcase (Fall 2022, Fall 2023)
- Faculty Connections Participant, CSM 101 (multiple semesters)

Professional and Community Service

- SAE Handling Editor, Non-Event Technical Papers (Fall 2022 – Present)
- Reviewer: SAE, IEEE, TRB, ASEE, *Transportation Research Part D*, *Journal of Sustainable Transportation*, *Energy Environment & Policy*, *International Journal of Commercial Vehicles*
- BWC Faculty Advisory Board (Fall 2024)
- State of Colorado CEVC ZEV Workforce Development Group (2024)
- State of Colorado ZEV Mechanic Focus Team (2024)
- KERN Community Catalysts, Cohort 13 / EMxAI Working Group Leader (2025 –)
- KEEN Crescendo National Team (Spring 2026)
- Advisory Board Member, Orbital Mining Corporation
- AIAA Pathfinder Conference (September 2023)
- Guest Lecturer: MEGN 408 (F23), MEGN 452 (F25), HNRS 110 (F24), MEGN 391 (F24, F25)

- Guest Judge, Technology Entrepreneurship EBGN 566 (F24)
- Green Mountain High School Innovation Fair Judge (April 2023)
- Code Denver: High School Arduino Facilitator (Su23)
- Mines Moonlight Breakfast Volunteer (May 2023)

Professional Memberships

ASEE · SAE · AIAA · IEEE · TRB · PMI

HONORS & AWARDS

- **2026:** Mines Protofund: 3 student project awards advised
- **2026:** KEEN Crescendo Program: selected as 1 of 5 national members
- **2025:** Mines Trefny Center Engineering Learning Fellow
- **2025:** Kern Family Foundation Community Catalyst Program, Cohort 13
- **2025:** DOE Battery Workforce Challenge: 4th Place Nationally ($8k+ prize money to team)
- **2025:** KEEN EML Mini-Grant: $600
- **2024:** Project Management Professional (PMP) Certification
- **2024:** DOE Battery Workforce Challenge: 1st Place Nationally ($10k+ prize money to team)
- **2023:** Mines Zero Textbook Cost Award (MEGN 456, MEGN 566)
- **2022:** Professional Engineer (P.E.), State of Colorado
- **2019:** NREL Outstanding Partnership Award (GCxN)
- **2014:** NREL President's Award: Outstanding efforts to enhance the Transportation Secure Data Center and Fleet DNA repositories

ENTREPRENEURIAL VENTURES

Co-Founder *2023 – Present*

Method & Muse Spirits Golden, CO

- Award-winning craft distillery co-founded with Prof. Aubrey Wigner (Mines) and four Mines alumni; operates on Mines' 45th Drive campus.
- Submitted institutional partnership proposal to Mines (March 2026) scoped across professional education programming and a credit-bearing distilling science course targeting Fall 2026 pilot enrollment.
- Activity conducted in accordance with Mines outside employment and conflict-of-interest policies.

MEDIA ENGAGEMENT

Mines and Industry Coverage (2023–2026)

1. *Colorado School of Mines Newsroom* (2024): "Mines, ACC team named first-year champions of Battery Workforce Challenge" (quoted as faculty advisor).
2. *Colorado School of Mines Newsroom* (2024): "Building on an idea: Battery Workforce Challenge team creates electric vehicle for multi-year competition."
3. *Colorado School of Mines Newsroom* (2023): "Colorado School of Mines, Arapahoe Community College selected for Battery Workforce Challenge."
4. *Mines Mechanical Engineering Department* (2024): "Battery Workforce Challenge Names Year One Champion Teams."
5. *Battery Tech Online* (2024): "Battery Workforce Challenge Declares First-Year Champion Teams."
6. *PR Newswire* (May 2024): "Battery Workforce Challenge Names Year One Champion Teams."
7. *Arapahoe Community College Newsroom* (2024): "ACC and Mines Named BattChallenge Year One

Champions."
8. *PR Newswire* (April 2026): "Energy Department and Argonne Join GM, Stellantis and MathWorks to Launch EcoCAR Innovation Challenge" (Mines selected as one of 20 participating universities).

NREL and GCxN Coverage (2018–2020)

1. *NREL News* (2018): "NREL and Shell Launch Accelerator Program for Emerging Technologies" (founding announcement; quoted as program manager).
2. *NREL News* (March 2019): "Shell GameChanger Accelerator Powered by NREL (GCxN) Recognized as Top NREL Partnership in 2018."
3. *NREL News* (2019): "A Global Energy GameChanger."
4. *Business Wire* (November 2019): "Five Companies Selected to Join GCxN Cleantech Accelerator."
5. *Business Wire* (May 2020): "Three startups with solar and energy storage technologies selected for Shell GameChanger Accelerator Powered by NREL."
6. *CleanTechnica* (2020): "Shell Has a Bigger Clean Energy Plan Than You Think."
7. *Energy Storage News* (2020): "Shell-NREL Accelerator: Important to Explore Alternatives to Lithium-Ion."
8. *GreenTech Media* (2020): "From the Lab: The Energy Transition Needs Perovskite PV and Alternative Energy Storage."
9. *Innovation and Tech Today* (2020): "How Resilience Technology is Helping Communities Through Natural Disasters."
10. *Scientific American* (2019): "Climate Concerns Are Pushing Oil Majors to Look Beyond Fossil Fuels."
11. *Medium.com* (2019): "A Global Energy Gamechanger."

Earlier Coverage

1. *Service Truck Magazine* (2019): "How to Make Smart Choices when Acquiring a New Truck."
2. *EurekAlert!* (2015): "NREL Collaborates with Trucking Industry to Prioritize R&D Opportunities."