

Curriculum Vitae

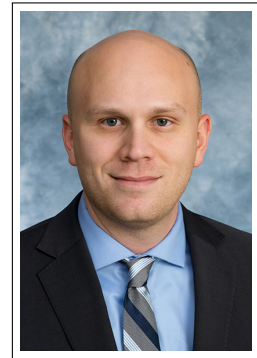
Daniel R. Herber

A202F Engineering Building
Fort Collins, CO 80523

☎ +1 (970) 491 1491

✉ daniel.herber@colostate.edu

🌐 engr.colostate.edu/~drherber



Academic Appointments

- 8/2019–Present *Assistant Professor*, Colorado State University, Department of Systems Engineering
1/2018–7/2019 *Postdoctoral Research Associate*, University of Illinois at Urbana-Champaign, NSF Center for Power Optimization of Electro-Thermal Systems (POETS)

Education

- 8/2014–12/2017 *Ph.D. in Systems and Entrepreneurial Engineering*, University of Illinois at Urbana-Champaign, adviser—James T. Allison
Dissertation: *Advances in combined architecture, plant, and control design*
8/2012–5/2014 *M.S. in Systems and Entrepreneurial Engineering*, University of Illinois at Urbana-Champaign, adviser—James T. Allison
8/2008–12/2011 *B.S. in General Engineering*, highest honors, University of Illinois at Urbana-Champaign, physics minor, applied statistics secondary field of concentration

Research Interests

- Methodology design optimization · computational design · model-based systems engineering · system architecture synthesis · architecture graph representations and enumeration · artificial intelligence in engineering design · modeling and simulation of dynamic systems · multi-disciplinary dynamic system design optimization · combined physical and control system design (control co-design) · dynamic optimization · numerical methods for optimal control · direct transcription · pseudospectral methods
- Applications energy systems (ocean wave energy converters, wind turbines, hydrokinetic turbines, carbon capture systems) · mechanical systems (aircraft thrust reversers, strain-actuated solar arrays, vehicle suspensions) · electrical systems (analog filter circuits, power converters) · thermal systems (aircraft air cycle machines, thermal management networks)

Research Experience

- 5/2016–7/2016 *Simulation & Analysis Intern*, Deere & Company, focusing on battery modeling and systems engineering projects.
5/2015–8/2015 *Simulation & Analysis Intern*, Deere & Company, researched methods to solve complex system architecture design problems focusing on hybrid powertrains and active suspensions.
1/2013–12/2017 *Graduate Research Assistant*, Dept. of Industrial and Enterprise Systems Engineering, UIUC, appointment to work on various research projects.
1/2012–1/2014 *Research Intern*, John Deere Technology Innovation Center, Champaign, IL, developed a discrete event simulation of large-scale agricultural operations using MATLAB, SIMULINK, and R linked with agricultural environment simulations.
12/2011–07/2019 *Member*, Engineering System Design Lab, UIUC.

Teaching Experience

- SP2022, SP2020 *ENGR 667: Advanced Model-Based Systems Engineering*—Instructor (2022), Co-instructor (2020), CSU.
- FA2021 *ENGR 510: Engineering Optimization: Method/Application*—Instructor, CSU.
- FA2020, FA2021 *SYSE 567: Systems Engineering Architecture*—Instructor, CSU.
- SP2021 *SYSE 580A1: Control Engineering for Systems Engineers*—Instructor, CSU.

Funding

Probabilistic Performance Assessment and Control Co-Design of Wave Farms, NSF-sponsored project (Co-PI, 3 years, \$529,225)

A Computer Tool to Control Co-Design Hydrokinetic Energy Systems, ARPA-E-sponsored project, (Co-PI, 3 years, \$1,200,000)

Application of Model-Based Systems Engineering to EM-TRAS Systems, Woodward-sponsored project, (PI, 9 months, \$56,154)

NAWI Roadmapping, National Alliance for Water Innovation project funded by DOE-US Department of Energy (Co-PI, 1 year)

Synergistic Heat Pumped Thermal Storage and Flexible Carbon Capture System, ARPA-E-sponsored project (Co-PI, 1 year for Phase 1, \$1,000,000)

Conceptual Level Thermal System Architecture Design and Model Based Systems Engineering, Air Force Research Laboratory-sponsored project, (PI, 2 years, \$96,000)

Wind Energy with Integrated Servo-control (WEIS): A Toolset to Enable Controls Co-Design of Floating Offshore Wind Energy Systems, subaward from ARPA-E-sponsored project (PI, 2 years, \$56,000)

Honors and Awards

- 8/2016 *List of Teachers Ranked as Excellent by Their Students Spring 2016*, based on student evaluations for position as a GE 312 teaching assistant.
- 5/2015 *JPL Research Poster Conference Award*, co-author on poster titled “Strain Actuation & Sensing of SC Structures for Payload Jitter Suppression and Momentum Dumping” presented at the Jet Propulsion Laboratory Research and Development poster session on Nov. 12, 2014.
- 4/2015 *Mavis Future Faculty Fellow*, selected as a MF3 Fellow for 2015–2016 whose program is designed to help doctoral students in the College of Engineering become the next generation of great engineering faculty.
- 4/2013 *ISE Service Award*, given to recognize students who demonstrate leadership and commitment to the Dept. of Industrial and Enterprise Systems Engineering, UIUC.
- 8/2012 *Best Technological Innovation*, given to an intern for the best technological innovation at the Research Park at UIUC, project with John Deere Technology Innovation Center.

Service and Leadership

- 7/2020–Present *Member*, CSU Systems Engineering Department Diversity, Equity, and Inclusion committee; lead of the Staff/Faculty/Student Cultural Competency working group.
- 8/2018–Present *Session Co-organizer* for Active System Design/Control Co-Design topic, ASME International Design Engineering Technical Conferences.

- 4/2012–Present *Peer Reviewer*, performed reviews for various journals and conference proceedings including:
 ASME: Journal of Mechanical Design, International Design Engineering Technical Conferences, International Mechanical Engineering Congress and Exposition; AIAA: AIAA Journal, Journal of Aerospace Information Systems, Journal of Thermophysics and Heat Transfer, SciTech Forum; IEEE: Access, Control Systems Letters, Transactions on Transportation Electrification; MDPI: Actuators, Applied Sciences, CivilEng, Electronics, Energies, Entropy, Healthcare, Materials, Processes, Sustainability, Systems; Elsevier: Aerospace Science and Technology, Computer-Aided Design; Other: Journal of Vibration and Control, Optics Express, Optimization and Engineering, Systems Engineering
- 7/2014 *College for Kids Kamp Kaboom—Mechanics of Trebuchets*, helped organize and run a 6 hour event demonstrating engineering principles to elementary school students.
- 4/2013–2017 *Junior Scientist Day—Mechanics of Trebuchets*, helped organize and run a science fair-like exhibit demonstrating engineering principles to elementary school students using trebuchets.
- 3/2013–2014 *Engineering Open House—Mechanics of Trebuchets*, helped organize and run a science fair exhibit demonstrating engineering principles to K-12 students.
- Fall 2012–2014 *GE 100—Student Helper*, Dept. of Industrial and Enterprise Systems Engineering, UIUC, assisted with the design and instruction of trebuchet introductory project.

Professional Memberships

- 3/2012–Present American Society of Mechanical Engineers, Member
- 8/2012–Present American Institute of Aeronautics and Astronautics, Member
- 8/2020–Present International Council on Systems Engineering, Associate Member

Profiles

- *Google Scholar*, 522 citations, url: [danielherber.com/links/google-scholar]
- *ResearchGate*, url: [danielherber.com/links/researchgate]
- *Publons*, url: [danielherber.com/links/publons]
- *GitHub*, url: [danielherber.com/links/github]
- *Matlab Central*, url: [danielherber.com/links/matlab-central]
- *LinkedIn*, url: [danielherber.com/links/linkedin]
- *ORCID* (0000-0003-4995-7375), url: [danielherber.com/links/orcid]
- *CSU Systems Engineering*, url: [danielherber.com/links/csu-se]
- *Research Group Website*, url: [enr.colostate.edu/~drherber]

Media



- *Water scarcity will require agriculture to tap ‘unconventional’ sources like seawater, wastewater* [link]
- *Systems engineering professor, NREL develop tools to make hydrokinetic turbines accessible* [link]
- *Engineering researchers will use NSF grant to revolutionize wave farm design, lowering cost of renewable energy* [link]
- *Faculty Friday: Dan Herber* [link]
- *CAPSat: Undergrad students prepare to launch a satellite* [link]
- *Dan Herber wins Mavis Future Faculty Fellow* [link]
- *ISE Graduate Student Dan Herber: Multidisciplinary Optimization* [link, no longer available]
- *Interns have much to gain at Research Park* [link]
- *Research Park honors most valuable interns of 2012* [link, no longer available]

Advising

Active* and former Ph.D. students

7. *Athul Sundarrajan, Systems Engineering (on-campus)
6. *Daniel Cobb, Systems Engineering (distance)
5. *Andrew Miller, Systems Engineering (distance)
4. *LaTasha Starr, Systems Engineering (distance)
3. *Anthony Sirico, Systems Engineering (distance)
2. *H. Sinan Bank, Systems Engineering (distance)
1. *Daniel Call, Systems Engineering (distance)

Active* and former M.S. students

3. *Roberto Vercellino, Mechanical Engineering (on-campus)
2. Jayesh Narsinghani, Systems Engineering (on-campus), defense date: 10/2021, thesis: *Towards a model-based implementation in technology/platform life-cycle development processes applied to a thrust reverser actuation system (TRAS) concept* 
1. Athul Sundarrajan, Systems Engineering (on-campus), defense date: 6/2021, thesis: *Some efficient open-loop control solution strategies for dynamic optimization problems and control co-design* 

Active* and former undergraduate students

5. Juan Saucedo-Paez, SURE SP2021 researcher
4. Aidan Brady, SURE SP2021 researcher
3. Hannah Park, SURE SP2020 researcher
2. Khang Ho, SURE SP2020 researcher
1. Macklin Harrington, SURE SP2020 researcher

Publications—Upcoming

- * BJ Limb, E Markey, S Garland, R Vercellino, MD Pisciotto, P Psarras, DR Herber, T Bandhauer, and JC Quinn, *Economic viability of thermal energy storage to support flexible operation of natural gas power plants with carbon capture*, (manuscript submitted to) ASTFE Thermal and Fluids Engineering Conference
- * DR Herber, JB Narsinghani, and K Eftekhari-Shahroudi, *Model-based structured requirements in SysML*, (manuscript submitted to) IEEE International Systems Conference
- * BJ Limb, E Markey, R Vercellino, S Garland, MD Pisciotto, P Psarras, DR Herber, T Bandhauer, and JC Quinn, *Economic viability of thermal energy storage on natural gas power plants with carbon capture*, (manuscript submitted to) Applied Energy
- * B Dustin, J Narsinghani, DR Herber, and T Bradley, *Human factors hazard modeling in the systems modeling language*, (manuscript submitted to) Systems Engineering
- * DR Call and DR Herber, *Applicability of the diffusion of innovation theory to accelerate model-based systems engineering adoption*, (manuscript submitted to) Systems Engineering
- * YH Lee, DR Herber, and JT Allison, *Simulation and optimization of linear viscoelasticity in the time domain using approximate linear time-invariant state-space models*, (extended abstract submitted to) International Congress of Theoretical and Applied Mechanics

Publications—Journal Articles



- $\mathcal{J}8$ CA Hejase, KA Weitzel, SC Stokes, BM Grauberger, RB Young, MS Arias-Paic, M Kong, S Chae, TM Bandhauer, T Tong, DR Herber, S Stout, A Miara, Z Huang, A Evans, P Kurup, M Talmadge, A Kandt, JR Stokes-Draut, J Macknick, T Borch, and DD Dionysiou, “Opportunities for treatment and reuse of agricultural drainage in the United States,” *ACS ES&T Engineering*, doi: 10.1021/acsestengg.1c00277, <https://pubs.acs.org/doi/pdf/10.1021/acsestengg.1c00277>
- $\mathcal{J}7$ DR Herber and JT Allison, “A problem class with combined architecture, plant, and control design applied to vehicle suspensions,” *ASME Journal of Mechanical Design*, vol. 141, no. 10, p. 101401, Oct. 2019. doi: 10.1115/1.4043312, <https://www.engr.colostate.edu/~drherber/files/Herber2019b.pdf>
- $\mathcal{J}6$ SRT Peddada, DR Herber, HC Pangborn, AG Alleyne, and JT Allison, “Optimal flow control and single split architecture exploration for fluid-based thermal management,” *ASME Journal of Mechanical Design*, vol. 141, no. 8, p. 083401, Aug. 2019. doi: 10.1115/1.4043203, <https://www.engr.colostate.edu/~drherber/files/Peddada2019a.pdf>
- $\mathcal{J}5$ DR Herber and JT Allison, “Nested and simultaneous solution strategies for general combined plant and control design problems,” *ASME Journal of Mechanical Design*, vol. 141, no. 1, p. 011402, Jan. 2019. doi: 10.1115/1.4040705, <https://www.engr.colostate.edu/~drherber/files/Herber2019a.pdf>
- $\mathcal{J}4$ CM Chilan, DR Herber, YK Nakka, SJ Chung, JT Allison, JB Aldrich, and OS Alvarez-Salazar, “Co-design of strain-actuated solar arrays for spacecraft precision pointing and jitter reduction,” *AIAA Journal*, vol. 55, no. 9, pp. 3180–3195, Sep. 2017. doi: 10.2514/1.J055748, <https://www.engr.colostate.edu/~drherber/files/Chilan2017a.pdf>
- $\mathcal{J}3$ DR Herber, T Guo, and JT Allison, “Enumeration of architectures with perfect matchings,” *ASME Journal of Mechanical Design*, vol. 139, no. 5, p. 051403, May 2017. doi: 10.1115/1.4036132, <https://www.engr.colostate.edu/~drherber/files/Herber2017a.pdf>
- $\mathcal{J}2$ DR Herber, AP Deshmukh, ME Mitchell, and JT Allison, “Project-based curriculum for teaching analytical design to freshman engineering students via reconfigurable trebuchets,” *Education Sciences*, vol. 6, no. 1, Feb. 2016. doi: 10.3390/educsci6010007, <https://www.engr.colostate.edu/~drherber/files/Herber2016a.pdf>
- $\mathcal{J}1$ JT Allison and DR Herber, “Multidisciplinary design optimization of dynamic engineering systems,” *AIAA Journal*, vol. 52, no. 4, pp. 691–710, Apr. 2014. doi: 10.2514/1.J052182, <https://www.engr.colostate.edu/~drherber/files/Allison2014a.pdf>
—Special Section on Multidisciplinary Design Optimization—

Publications—Conference Proceedings








- C24 LT Starr, JC de Baca, and DR Herber, “Sewing the digital transformation thread: A deeper look into model-based six sigma (MBSS) and the model-based systems architecture processes (MBSAP),” in *AIAA 2022 Science and Technology Forum and Exposition*, San Diego, CA, USA, Jan. 2022. doi: 10.2514/6.2022-0095, <https://www.engr.colostate.edu/~drherber/files/Starr2022a.pdf>
- C23 AR Miller and DR Herber, “Digital engineering transformation of requirements analysis within model-based systems engineering,” in *World Conference of the Society for Industrial and Systems Engineering*, Sep. 2021, <https://www.engr.colostate.edu/~drherber/files/Miller2021a.pdf>

- C22 AK Sundarraj, YH Lee, JT Allison, and DR Herber, "Open-loop control co-design of floating offshore wind turbines using linear parameter-varying models," in *ASME International Design Engineering Technical Conferences*, Aug. 2021,
📄 <https://www.engr.colostate.edu/~drherber/files/Sundarraj2021c.pdf>
- C21 R Buettner, DR Herber, P Abolmoali, and SS Patnaik, "An automated design tool for the generation and selection of optimal aircraft thermal management system architectures," in *AIAA Propulsion and Energy 2021 Forum*, Aug. 2021. doi: 10.2514/6.2021-3718,
📄 <https://www.engr.colostate.edu/~drherber/files/Buettner2021a.pdf>
- C20 AK Sundarraj and DR Herber, "Towards a fair comparison between the nested and simultaneous control co-design methods using an active suspension case study," in *American Control Conference*, May 2020,
📄 <https://www.engr.colostate.edu/~drherber/files/Sundarraj2021a.pdf>
—Invited Paper—
- C19 J Jonkman, A Wright, G Barter, M Hall, JT Allison, and DR Herber, "Functional requirements for the WEIS toolset to enable controls co-design of floating offshore wind turbines," in *International Offshore Wind Technical Conference*, Feb. 2021. doi: 10.1115/IOWTC2021-3533,
📄 <https://www.nrel.gov/docs/fy21osti/77123.pdf>
- C18 DR Herber and AK Sundarraj, "On the uses of linear-quadratic methods in solving non-linear dynamic optimization problems with direct transcription," in *ASME International Mechanical Engineering Congress & Exposition*, Nov. 2020. doi: 10.1115/IMECE2020-23885,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2020d.pdf>
- C17 DR Herber, "Enhancements to the perfect matching approach for graph enumeration-based engineering challenges," in *ASME International Design Engineering Technical Conferences*, Aug. 2020. doi: 10.1115/DETC2020-22774,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2020b.pdf>
- C16 DR Herber, JT Allison, R Buettner, P Abolmoali, and SS Patnaik, "Architecture generation and performance evaluation of aircraft thermal management systems through graph-based techniques," in *AIAA Science and Technology Forum and Exposition*, Orlando, FL, USA, Jan. 2020. doi: 10.2514/6.2020-0159,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2020a.pdf>
- C15 T Guo, DR Herber, and JT Allison, "Circuit synthesis using generative adversarial networks (GANs)," in *AIAA Science and Technology Forum and Exposition*, San Diego, CA, USA, Jan. 2019. doi: 10.2514/6.2019-2350,
📄 <https://www.engr.colostate.edu/~drherber/files/Guo2019a.pdf>
—Invited Paper—
- C14 T Guo, DR Herber, and JT Allison, "Reducing evaluation cost for circuit synthesis using active learning," in *ASME International Design Engineering Technical Conferences*, Québec City, Canada, Aug. 2018, V02AT03A011. doi: 10.1115/DETC2018-85654,
📄 <https://www.engr.colostate.edu/~drherber/files/Guo2018a.pdf>
- C13 SRT Peddada, DR Herber, HC Pangborn, AG Alleyne, and JT Allison, "Optimal flow control and single split architecture exploration for fluid-based thermal management," in *ASME International Design Engineering Technical Conferences*, Québec City, Canada, Aug. 2018, V02AT03A005. doi: 10.1115/DETC2018-86148,
📄 <https://www.engr.colostate.edu/~drherber/files/Peddada2018a.pdf>

- C12 DR Herber and JT Allison, “A problem class with combined architecture, plant, and control design applied to vehicle suspensions,” in *ASME International Design Engineering Technical Conferences*, Québec City, Canada, Aug. 2018, V02AT03A006. doi: 10.1115/DETC2018-86213,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2018a.pdf>
- C11 C Lin, DR Herber, Vedant, YH Lee, A Ghosh, RH Ewoldt, and JT Allison, “Attitude control system complexity reduction via tailored viscoelastic damping co-design,” in *AAS Guidance & Control Conference*, Breckenridge, CO, USA, Feb. 2018,
📄 <https://www.engr.colostate.edu/~drherber/files/Lin2018a.pdf>
- C10 DR Herber and JT Allison, “Unified scaling of dynamic optimization design formulations,” in *ASME International Design Engineering Technical Conferences*, Cleveland, OH, USA, Aug. 2017, V02AT03A003. doi: 10.1115/DETC2017-67676,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2017c.pdf>
- C9 DR Herber and JT Allison, “Nested and simultaneous solution strategies for general combined plant and controller design problems,” in *ASME International Design Engineering Technical Conferences*, Cleveland, OH, USA, Aug. 2017, V02AT03A002. doi: 10.1115/DETC2017-67668,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2017b.pdf>
- C8 DR Herber, T Guo, and JT Allison, “Enumeration of architectures with perfect matchings,” in *ASME International Design Engineering Technical Conferences*, Charlotte, NC, USA, Aug. 2016, V02AT03A005. doi: 10.1115/DETC2016-60212,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2016b.pdf>
- C7 CM Chilan, DR Herber, YK Nakka, SJ Chung, JT Allison, JB Aldrich, and OS Alvarez-Salazar, “Co-design of strain-actuated solar arrays for precision pointing and jitter reduction,” in *AIAA Science and Technology Forum and Exposition*, San Diego, CA, USA, Jan. 2016. doi: 10.2514/6.2016-0162,
📄 <https://www.engr.colostate.edu/~drherber/files/Chilan2016a.pdf>
- C6 JT Allison, DR Herber, and AP Deshmukh, “Integrated design of dynamic sustainable energy systems,” in *International Conference on Engineering Design*, vol. 1, Milan, Italy, Jul. 2015, pp. 299–308,
📄 <https://www.engr.colostate.edu/~drherber/files/Allison2015a.pdf>
- C5 AP Deshmukh, DR Herber, and JT Allison, “Bridging the gap between open-loop and closed-loop control in co-design: A framework for complete optimal plant and control architecture design,” in *American Control Conference*, Chicago, IL, USA, Jul. 2015, pp. 4916–4922. doi: 10.1109/ACC.2015.7172104,
📄 <https://www.engr.colostate.edu/~drherber/files/Deshmukh2015a.pdf>
- C4 DR Herber, JW McDonald, OS Alvarez-Salazar, G Krishnan, and JT Allison, “Reducing spacecraft jitter during satellite reorientation maneuvers via solar array dynamics,” in *AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, Atlanta, GA, USA, Jun. 2014, pp. 1–17. doi: 10.2514/6.2014-3278,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2014c.pdf>
- C3 DR Herber and JT Allison, “Wave energy extraction maximization in irregular ocean waves using pseudospectral methods,” in *ASME International Design Engineering Technical Conferences*, Portland, OR, USA, Aug. 2013, V03AT03A018. doi: 10.1115/DETC2013-12600,
📄 <https://www.engr.colostate.edu/~drherber/files/Herber2013a.pdf>
—Nominated as a Paper of Distinction—





- C2 JT Allison and DR Herber, “Multidisciplinary design optimization of dynamic engineering systems,” in *AIAA Multidisciplinary Design Optimization Specialist Conference*, Boston, MA, USA, Apr. 2013, pp. 1–30. doi: 10.2514/6.2013-1462,
 <https://www.engr.colostate.edu/~drherber/files/Allison2013a.pdf>
- C1 JT Allison, A Kaitharath, and DR Herber, “Wave energy extraction maximization using direct transcription,” in *ASME International Mechanical Engineering Congress and Exposition*, Houston, TX, USA, Nov. 2012, pp. 485–495. doi: 10.1115/IMECE2012-86619,
 <https://www.engr.colostate.edu/~drherber/files/Allison2012a.pdf>

Publications—Other



- O7 T Borch, DD Dionysiou, L Katz, P Xu, T Bandhauer, R Breckenridge, S Chae, K Ellison, J Fox, BM Graubergerand CA Hejase, DR Herber, M Kong, J Macknick, D Sedlak, SC Stokes, J Stokes-Draut, T Tong, KA Weitzel, and RB Young, “National alliance for water innovation (NAWI) technology roadmap: Agriculture sector,” NAWI, Technical Report DOE/GO-102021-5564, May 2021. doi: 10.2172/1782447,
 <https://www.nrel.gov/docs/fy21osti/79881.pdf>
- O6 DR Herber and JT Allison, “Approximating arbitrary impulse response functions with Prony basis functions,” Engineering System Design Lab, Urbana, IL, USA, Technical Report UIUC-ESDL-2019-01, Oct. 2019. url: <http://hdl.handle.net/2142/106010>,
 <https://www.engr.colostate.edu/~drherber/files/Herber2019c.pdf>
- O5 DR Herber, “Advances in combined architecture, plant, and control design,” Ph.D. Dissertation, University of Illinois at Urbana-Champaign, Urbana, IL, USA, Dec. 2017. url: <http://hdl.handle.net/2142/99394>,
 <https://www.engr.colostate.edu/~drherber/files/Herber2017e.pdf>
- O4 DR Herber and JT Allison, “Enhancements to the perfect matching-based tree algorithm for generating architectures,” Engineering System Design Lab, Urbana, IL, USA, Tech. Rep. UIUC-ESDL-2017-02, Dec. 2017. url: <http://hdl.handle.net/2142/98990>,
 <https://www.engr.colostate.edu/~drherber/files/Herber2017d.pdf>
- O3 DR Herber, “Basic implementation of multiple-interval pseudospectral methods to solve optimal control problems,” Engineering System Design Lab, Urbana, IL, USA, Technical Report UIUC-ESDL-2015-01, Jun. 2015. url: <http://hdl.handle.net/2142/77888>,
 <https://www.engr.colostate.edu/~drherber/files/Herber2015a.pdf>
- O2 DR Herber, “Solving optimal control problems using simscape models for state derivatives,” Engineering System Design Lab, Urbana, IL, USA, Technical Report UIUC-ESDL-2014-01, Jul. 2014. url: <http://hdl.handle.net/2142/50015>,
 <https://www.engr.colostate.edu/~drherber/files/Herber2014b.pdf>
- O1 DR Herber, “Dynamic system design optimization of wave energy converters utilizing direct transcription,” M.S. Thesis, University of Illinois at Urbana-Champaign, Urbana, IL, USA, May 2014. url: <http://hdl.handle.net/2142/49463>,
 <https://www.engr.colostate.edu/~drherber/files/Herber2014a.pdf>

Presentations

- P5 JC Quinn, BJ Limb, E Markey, S Garland, R Vercellino, MD Pisciotta, P Psarras, J Wilcox, DR Herber, and T Bandhauer, “Economic viability of flexible carbon capture for natural gas power plants,” in *TechConnect World Innovation Conference and Expo*, Oct. 2021

- $\mathcal{P}4$ BJ Limb, E Markey, S Garland, R Vercellino, AK Sundarrajan, MD Pisciotta, J Wilcox, DR Herber, T Bandhauer, and JC Quinn, "The future of carbon capture: A story of the tortoise and the hare," in *International Symposium on Sustainable Systems and Technology*, Jun. 2021,
 <https://www.engr.colostate.edu/~drherber/files/Limb2021a.pdf>
- $\mathcal{P}3$ DR Herber and AK Sundarrajan, "Using the nested control co-design strategy for designing floating offshore wind turbines," in *Wind Energy Science Conference*, May 2021,
 <https://www.engr.colostate.edu/~drherber/files/Herber2021a.pdf>
- $\mathcal{P}2$ DR Herber and JT Allison, "Control co-design: Achieving new functionality and performance via integrated physical and control system design," in *ASME International Design Engineering Technical Conferences, DETC2020-19184*, Aug. 2020,
 <https://www.engr.colostate.edu/~drherber/files/Herber2020c.pdf>
- $\mathcal{P}1$ JT Allison and DR Herber, "Control co-design: Achieving new functionality and performance via integrated physical and control system design," in *ASME International Mechanical Engineering Congress & Exposition, IMECE2019-13707*, Salt Lake City, UT, USA, Nov. 2019,
 <https://www.engr.colostate.edu/~drherber/files/Allison2019a.pdf>

Invited Talks

- 2020 "Integrated dynamic system design through the dimensions of plant, control, and system architecture," *University of Colorado Boulder Electrical, Computer & Energy Engineering Department seminar*, Dec. 1.
 <https://www.engr.colostate.edu/~drherber/files/Herber2020-cuboulder-talk.pdf>
- "Control co-design direct transcription solution strategies: Overview and challenges," *NSF IDADS Online Workshop*, Mar. 26.
 <https://www.engr.colostate.edu/~drherber/files/IDADS-Herber.pdf>
- 2019 "Challenges and methods for the integrated design of dynamic engineering systems through system architecture synthesis and control co-design," *NREL's Flatirons Campus*, Oct. 31.

Fort Collins, Colorado, USA, January 6, 2022