Meghan E. L. Stancliff
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EDUCATION

University of Colorado, *Boulder, Colorado, May 2027* Bachelor of Science in Biomedical Engineering, Minor in Creative Writing

PEER-REVIEWED PUBLICATIONS, TECHNICAL REPORTS, AND PRESENTATIONS

1. **Stancliff, M.E.L.**, Attai, J., Brubaker, E.R., Burleson, G. (2025). Exploring How Students Engage With Stakeholder Perspectives in Engineering for Sustainable Development. *Proceedings of the ASME International Design Engineering Technical Conferences (IDETC), Houston, TX.**
2. Jung, D.N., **Stancliff, M.E.L.**, Burleson, G., Bruns, C.J., (2026). Strengthening Confidence in STEM Through Hands-On Robotics and Chemistry Workshops in Middle Schools (Evaluation). *Proceedings of the American Society for Engineering Education Conferences, Charlotte, NC.*
3. Mitra, A., Aggarwal, N., Nigam, R., Kopardekar, P.K., Young, L.A., Fichera, N.S., Hinkel, J.M., Wong, J.C., Kent, H., Saadi, J.I., **Stancliff, M.E.**, Brubaker, E.R. (2026). Vulnerability Assessment for Aviation Systems Tool: Economic Impacts of Natural Disasters. *Proceedings of the AIAA SciTech Conference, Orlando, FL.*
4. Kopardekar, P.K., Mitra, A., Johnson, M.A., Young, L.A., Cozby, H.A., Fichera, N.S., Hinkel, J.M., Kent, H., Saadi, J.I., **Stancliff, M.E.**, Miller, A.L., Brubaker, E.R. (2025). Building Resilience in Aviation: Economic Impacts of Disasters and Future Adaptations. *Proceedings of the AIAA Aviation Forum, Las Vegas, NV.*
5. Logan, M.J., White, L.M., Bowes, A., Frankforter, E., Brubaker, E.R., Miller, A., **Stancliff, M.**, Rask, J., Fuller, D., Knight, A., Bond, K. (2025). Application of UAS Technologies to Create Resilient Rural Communities. *Proceedings of the AIAA Aviation Forum, Las Vegas, NV.*
6. Frankforter, E., Bowes, A., Brubaker, E.R., Logan, M., Miller, A., **Stancliff, M.**, White, L., Rask, J., Fuller, D., Bond, K., Knight, A. (2025). Convergent Opportunities in Unmanned Aircraft Systems for Civil and Aerospace Inspection. *Proceedings of the AIAA Aviation Forum, Las Vegas, NV.*
7. **Stancliff, M.**, Balevic, E.G., Brubaker, E.R., Burleson, G. (2025). Understanding Stakeholder PerspectiveTaking (SPT) in Design: Expanding the SPT Spectrum and introducing SPT signatures. *Proceedings of the ASME International Design Engineering Technical Conferences (IDETC), Anaheim, CA.*
8. Knight, A., Brubaker, E.R., Kinch, S., Best, R., Bond, K., Fichera, N., Meadows, M.S., **Stancliff, M.**, Wagner, D., Wohl, C., Villarrubia, J. (2025). Discovery Fundamental Units: Towards A Nested Framework of Templates for Convergent Innovation. NASA Technical Memorandum. NASA-TM-20250002378. (link)
9. Knight, A., White, L.M., Rask, J., Bond, K., Bowes, A., Frankforter, E., Fuller, D., Logan, M.J., Miller, A., **Stancliff, M.**, Brubaker, E.R. (2025). Visualizing Design Logics as Boundary Objects in Design. *Proceedings of the International Conference on Engineering Design (ICED 2025), Dallas, TX, USA.*
10. **Stancliff, M.E.** (2025). Building Resilience in Aviation: Economic Impacts of Disasters and Future Adaptations. *Virtual presentation and panel discussion at the AIAA Aviation Forum, Las Vegas, NV.*

*Accepted but not yet published.

RELEVANT EXPERIENCES

Engineering for Change Fellowship
Fellow partnered with Prometheus Materials March 2025 – Present
Engineering for Change, Longmont, Colorado

- Performed intensive literature on concrete feedstock formulations, 3D concrete printing, 3D concrete printing apparatuses
- Designed and conducted experiments to identify optimal concrete feedstock formulations comprised of Prometheus Materials patented sustainable cement substitutes for 3D printing
- Attended E4C career advancement/skill building learning modules and workshops; contributed to research efforts to grow their *Solutions Library*

Burleson Global Design Group
Undergraduate Research Assistant to Professor Grace Burleson May 2024 – Present
University of Colorado, Boulder, Colorado

- Conducted a literature review to understand previous research on Stakeholder Perspective Taking (SPT), design science, and qualitative and quantitative data collection and analysis
- Independently created IRB protocol for the study, design activity for focus groups, and semi-structured post-interview questions and facilitated all design activity sessions and interviews
- Performed directed content analysis to and utilized a negotiated agreement approach iterate upon previous *SPT Spectrum*; proposed *SPT Signatures* as a tool to better understand SPT
- First-author of accepted ASME IDETC/CIE2025 paper, "From Dismissal to Adoption: Examining and Visualizing Stakeholder Perspective-Taking in Design"
- Assisted with preparation and facilitation of middle school lego-chemistry workshop study funded by the Emergent Nanomaterials Lab advised by Dr. Carson Bruns

NASA Convergent Aeronautics Solutions
Undergraduate Student Researcher (remote), 4th of 4 rotations Jan 2025 – May 2025

- Gathered stakeholder needs/hopes/wants for Vulnerability Assessment for Aviation Systems Tool (VAAST) as well as feedback on prototypes/mockups of tool
- Utilized Figma to create mockups and models for VAAST tool
- Co-authored "Vulnerability Assessment for Aviation Systems Tool: Economic Impacts of Natural Disasters" extended abstract and presented on Building Enhanced Aviation Resiliency Systems project at AIAA

NASA Convergent Aeronautics Solutions
Undergraduate Student Researcher (remote), 3rd of 4 rotations Jan 2025 – May 2025

- Recommended 100+ weather events to research causal aeronautic disruptions, contributed to populating METAR and TAF report data, created standard for assessing disruption severity
- Assisted in planning several workflows and efforts to create a plan for aeronautic weather-disruption resiliency
- Created "scorecards" with high-level weather-disruption data to problem-frame and educate stakeholders and co-designers for future engagement when exploring various solution paths
- Co-authored "Building Resilience in Aviation: Economic Impacts of Disasters and Future Adaptations"

NASA Convergent Aeronautics Solutions
Undergraduate Student Researcher (remote), 2nd of 4 rotations Aug 2024 – Dec 2024

- Collaborated with experienced large-language model (LLM) specialist to refine prompts to facilitate AI-generated interview debriefs
- Proposed potential role of large-language models (LLMs) in interview debriefing through the identification of AI strengths and weaknesses
- Contributed to information input from concluding project into CAS database and assisted in creating an organizational system for data collected from a year-long project
- Assisted the refinement of template and design-sprint guide to streamline and improve future CAS project research, processes, and outcomes
- Co-authored two conference papers, an extended abstract, and a technical memorandum

NASA Convergent Aeronautics Solutions
Undergraduate Student Researcher (remote), 1st of 4 rotations May 2024 – Aug 2024

- Collaborated with an interdisciplinary team of engineering, technology, and design experts to finalize data collection and research pertaining to the usage of aeronautic technologies in rural communities to enhance extreme weather resilience and improve residents' quality of life
- Assisted in writing and editing three opportunity concept reports and presentations by finding supporting data and proofreading the finalized reports
- Helped make decisions on which opportunity concepts should be presented to CAS leadership and how and why concepts may be combined and/or eliminated

Lake Forest Pediatric Dentistry
Lead CAD Designer June 2021 – July 2022
Lake Forest, Illinois

- Utilized Fusion360 and SolidWorks to create several iterations of a suction mouthpiece designed for patient comfort, maximum suction power, durability, ease of sanitation, and cost effectiveness
- Independently designed suction mirror attachment and suction straw attachment
- Communicated with 3D printing manufacturing experts to problem-solve printing failures
- Coordinated with potential suction mouthpiece manufacturers to assess production feasibility

LEADERSHIP

Team Leader, **GEEN 2400: Engineering Projects for the Community** *Aug 2023 – Dec 2023*
University of Colorado, Boulder, Colorado

- Delineated and organized tasks to each team member based while prioritizing their desired individual learning outcomes, strengths, and overall project efficiency
- Communicated with JAECO spokesperson throughout the design process to ensure that we were meeting their requirements and goals for the system based on their client's feedback about JAECO's MultiLink Arm Support
- Worked with team members to prototype and iterate upon the encasement of the system using SolidWorks

PROJECTS

MCEN 4228: Special Topics: Mechanical Engineering Design for Inclusion *Jan 2024 – May 2024 Group Member*
University of Colorado, Boulder, Colorado

- Conducted literature reviews and biographical research on the mechanical history of wheelchairs and wheelchair users' experiences with accessibility and mobility
- Interviewed several wheelchair user's to gain more information about the functionality of their mobility devices, access to medical care and medical technology, and mobility
- Wrote a report compiling qualitative and quantitative data regarding wheelchair use and accessibility and presented findings during a public MCEN 4228 event

BMEN 1025: CAD/Fabrication for Biomedical Engineers *Aug 2022 – Dec 2022 Independent Designer of the* Lazy Switch
University of Colorado, Boulder, Colorado

- Utilized SolidWorks part, assembly, and drawing features to create and iterate upon the *Lazy Switch* design
- Designed several components necessary to produce the *Lazy Switch*, and produced industry-standard drawings of each component
- Procured an approximation of the total cost of production for one unit of the *Lazy Switch*

RELEVANT COURSEWORK

University of Colorado – B.S. in Biomedical Engineering
• BMEN 1025 – CAD/Fabrication for Biomedical Engineers
• CHEN 1310 – Introduction to Engineering Computing (Excel/VBA)
• GEEN 2400 – Engineering Projects for the Community
• MCEN 4228 – Special Topics: Mechanical Engineering Design for Inclusion
Case Western Reserve University – B.S. in Biomedical Engineering (incomplete)
• ENGR 131B – Introduction to Engineering and Programming (MATLAB)
• FSSO 182 – Urban Nature
University of Colorado – Minor in Creative Writing
• ENGL 1191 – Introduction to Creative Writing
• WRTG 3020 – Special Topics in Writing: Ways of Telling the Story
• WRTG 3020 – Special Topics in Writing: Narrative and the Self

REFERENCES

Grace Burleson
University of Colorado at Boulder
Design Researcher & Educator | Assistant Professor | Mortenson Center in Global Engineering and Resilience Faculty Fellow
grace.burleson@colorado.edu

Anja Lange
University of Colorado at Boulder
Teaching Professor | Director, Herbst Program for Engineering, Ethics & Society
Anja.Lange@colorado.edu