



Christopher Flathmann, PhD

Research Assistant Professor, Human-Centered Computing

Associate Director, Team Research Analytics in Computational Environments (TRACE) Research Group

School of Computing

College of Engineering, Computing, and Applied Sciences
Clemson University

Lab website: <https://computing.clemson.edu/trace/>

Personal Website: <https://chrisflathmann.com>

Email: cflathm@clemson.edu

Address: 119 McAdams Hall, Clemson, SC, 29631

Short Biography

Dr. Christopher Flathmann is a Research Assistant Professor and the Associate Director of the Team Research Analytics in Computational Environments (TRACE) Research Group within the division of Human-Centered Computing in the School of Computing at Clemson University. Dr. Flathmann received a PhD in Human-Centered Computing from Clemson University. For the last 5 years, Dr. Flathmann has prioritized the exploration of human-autonomy teamwork through multiple empirical research studies that have emphasized the importance of exploring the potential of human-autonomy teams that leverage modern autonomous platforms. As a mixed-methods research, Dr. Flathmann continuously leverages qualitative, quantitative, and computational methodologies iterate on various concepts within the human-centered AI domain, with a heavy emphasis on social influence, acceptance, and the human-centered design of AI teammates. Additionally, his work spans various contexts, including software development, education, sports, manufacturing, and command and control. To date, Dr. Flathmann has acquired over \$3 million in research funding from Air Force Office of Scientific Research and the National Science Foundation. He has also been able to publish over 26 articles and papers in high-impact HCI and Human Factors venues, such as Computer Supported Cooperative Work, Computers in Human Behavior, Human-Computer Interaction, and GROUP, to name a few.

CURRICULUM VITAE

Christopher Flathmann

Research Assistant Professor, Human-Centered Computing
School of Computing, Clemson University
119 McAdams Hall, Clemson SC, 29631
Email: cflathm@clemson.edu

Education

- Ph.D. Human-Centered Computing, Clemson University, 2023 (Advisor: Nathan J. McNeese)
- B.S. Computer Science, Clemson University University, 2018

Appointments

Primary

- Fall 2024 **Assistant Professor**, Human-Centered Computing, School of Computing, College of Engineering, Computing and Applied Sciences, Clemson University
- 2023- **Research Assistant Professor**, Human-Centered Computing, School of Computing, College of Engineering, Computing and Applied Sciences, Clemson University

Secondary

- 2023- **Associate Director**, Team Research Analytics in Computational Environments (TRACE) Research Group, Clemson University;
<https://computing.clemson.edu/trace/>

Achievement Highlights

- Over **26 publications** in top HCI and Human Factors conferences and journals.
- **Three best papers** received or nominated for Best Paper Award in ACM GROUP, ACM HAI, HICSS
- **Reviewer of over 12 journals and conferences.**
- **Over \$3 million is awarded research funding.**

Sponsored Research Grants and Gifts

Funding Summary

Awarded (total across all grants/gifts): \$3,266,723

Flathmann Allocation at Clemson: \$838,659

External PI, Co-PI, & Senior Personnel(Active):

- 2023** Minimizing the Impact of Cognitive and Physical Limitations from Humans and Autonomy Through the Development, Training, and Implementation of Human-Autonomy Teaming in Underwater Environments. ONR. (Co-PI, 30%) **\$1,095,901** *Pending Transfer of Funds
- 2023** Collaborative Research: FW-HTF-RL: The Future of Aviation Inspection: Artificial Intelligence and Mixed Reality as Agents of Transformation. NSF. (Senior Personnel, 17%) **\$1,558,433**
- 2023** Synchronizing Collaborations for Human-Autonomy Teaming and Ethical Autonomy Use. AFOSR DURIP. (Co-PI, 40%) **\$612,389**

External Development & Writing Support of Funded Work:

- 2021 The Spread of Trust and Distrust in Distributed Human-Autonomy Teaming Constellations. AFOSR. **\$1,302,657**
- 2021 Connecting and Leveraging Physical and Digital Dimensions to Advance Human-Autonomy Teaming. ONR DURIP. **\$295,792**
- 2020 Promoting Human Interpretation and Interaction to Mitigate Bias in Artificial Intelligence Assisted Decision Aids. ONR. **\$444,368**
- 2020 Considerations of Ethical and Unethical Behavior on Trust in Human-Autonomy Teaming. AFOSR. **\$586,538**

Publications

Dissertation (Approved by Committee)

- D.1 **Flathmann, C.** (February 2023). How to Make Agents and Influence Teammates: Understanding the Social Influence AI Teammates Have in Human-AI Teams. Committee: Nathan McNeese, Brian Dean, Eileen Kraemer, Brygg Ullmer, Laine Mears

Journal Articles

- JA.17 O'Neill, T. A., **Flathmann, C.**, McNeese, N. J., Jones, S. K., & Schelble, B. (in press). A comment on "Can you Outsmart the Robot? An Unexpected Path to Work Meaningfulness" by Bernadeta Goštautaitė, Irina Liubertė, Sharon K. Parker, and Ilona Bučiūnienė: Calling for a different path for the future of human-robot teaming. *Academy of Management Discoveries*.
- JA.16 Musick, G., Duan, W., Sengupta, S., **Flathmann, C.**, Knijnenburg, B., & McNeese, N.J., (In Press). To share or not to share: Understanding and modeling individual disclosure preferences in recommender systems for the workplace. *ACM GROUP*.
- JA.15 Musick, G., Hauptman, A. I., **Flathmann, C.**, McNeese, N. J., & Knijnenburg, B. P. (2023). Recommendations with Benefits: Exploring Explanations in Information Sharing Recommender Systems for Temporary Teams. *International Journal of Human-Computer Interaction*
<https://doi.org/10.1080/10447318.2023.2278933>
- JA.14 Mallick, R., **Flathmann, C.**, Lancaster, C., Hauptman, A., McNeese, N.J., & Freeman, G., (2023). The Power of Positive AI: Designing next-generation artificial intelligence to adapt to the emotional needs of Human Teammates within Human-Agent Teams *Behavior and Information Technology*.
<https://doi.org/10.1080/0144929X.2023.2277909>
- JA.13 Lancaster, C., Schulenberg, K., **Flathmann, C.**, McNeese, N.J., & Freeman, G., (2023). "It's Everybody's Role to Speak Up... But Not Everyone Will": Understanding AI Professionals' Perceptions of Accountability for AI Bias Mitigation. *ACM Responsible Computing*. <https://doi.org/10.1145/3632121>
- JA.12 Zhang, R., **Flathmann, C.**, Duan, W., Schelble, B.G., McNeese, N.J., & Knijnenburg, B. (2023). I Know This Looks Bad, But I Can Explain: Understanding When AI Should Explain Actions In Human-AI Teams. *ACM Transactions on Interactive Intelligent Systems*.
<http://dx.doi.org/10.1145/3635474>
- JA.11 **Flathmann, C.**, Duan, W., McNeese, N., Hauptman, A., & Zhang, R. (In Press). Empirically Understanding the Potential Impacts and Process of Social Influence in Human-AI Teams. *Proceedings of the ACM on Human-Computer Interaction*. (CSCW).
- JA.10 **Flathmann, C.**, Schelble, B.G., McNeese, N.J., Knijnenburg, B., Gramopadhye, A., & Madathil K.C. (2023). The Purposeful Presentation of AI Teammates: Impacts on Human Acceptance and Perception. *International Journal of Human-Computer Interaction*.
<https://doi.org/10.1080/10447318.2023.2254984>
- JA.9 Mcneese, N.J., **Flathmann, C.**, O'Neill, T., & Salas, E., (2023). Stepping out of

the shadow of human-human teaming: Crafting a unique identity for human-autonomy teams *Computers in Human Behavior*.

<https://doi.org/10.1016/j.chb.2023.107874>

- JA.8 O'Neill, T., **Flathmann, C.**, McNeese, N.J., & Salas, E., (2023). 21st Century teaming and beyond: Advances in human-autonomy teamwork *Computers in Human Behavior*. <https://doi.org/10.1016/j.chb.2023.107865>
- JA.7 **Flathmann, C.**, Schelble, B. G., Rosopa, P. J., McNeese, N. J., Mallick, R., & Madathil, K. C. (2023). Examining the impact of varying levels of AI teammate influence on human-AI teams. *International Journal of Human-Computer Studies*, 177, 103061. <https://doi.org/10.1016/j.ijhcs.2023.103061>
- JA.6 O'Neill, T., **Flathmann, C.**, McNeese, N.J., & Salas, E., (2023). Human-autonomy Teaming: Need for a guiding team-based framework? *Computers in Human Behavior*. <https://doi.org/10.1016/j.chb.2023.107762>
- JA.5 Zhang, R., Wen, D., **Flathmann, C.**, Freeman, G., & McNeese, N.J. (2023). Investigating AI Teammate's Communication Strategies and Their Impact in Human-AI Teams For Effective Teamwork. *Proceedings of the ACM on Human-Computer Interaction*. (CSCW). <https://doi.org/10.1145/3610072>
- JA.4 **Flathmann, C.**, McNeese, N.J., Schelble, B.G., Knijnenburg, B., & Freeman, G. (2023). Understanding the Impact and Design of AI Teammate Etiquette. *Human-Computer Interaction*. <https://doi.org/10.1080/07370024.2023.2189595>
- JA.3 Schelble, B., **Flathmann, C.**, McNeese, N.J., O'Neill, T., Pak, R., & Namara, M. (2022). Investigating the Effects of Perceived Teammate Artificiality on Human Performance and Cognition. *International Journal of Human-Computer Interaction*. <https://doi.org/10.1080/10447318.2022.2085191>
- JA.2 Schelble, B.G., **Flathmann, C.**, Musick, G., McNeese, N.J., & Freeman, G. (2022). I See You: Examining the Role of Spatial Information in Human-Agent Teams. *Proceedings of the ACM on Human-Computer Interaction*. (CSCW), 1-27. <https://doi.org/10.1145/3555099>
- 🏆 JA.1 Schelble, B.G., **Flathmann, C.**, McNeese, N.J., Freeman, G., & Mallick, R. (2022). Let's Think Together! Assessing Shared Mental Models, Performance, and Trust in Human-Agent Teams. *Proceedings of the ACM on Human-Computer Interaction*. 6(GROUP), 1-29. <https://doi.org/10.1145/3492832>
*Honorable Mention Paper Award

Under Review

- UR.10 Hauptman, A.I., **Flathmann, C.**, McNeese, N.J. (Under Review). Adapting to the Human: A Systematic Review of a Decade of Human Factors Research on Adaptive Autonomy. *Applied Ergonomics*.
- UR.9 Hauptman, A.I., Schelble, B.G., Duan, W., **Flathmann, C.**, McNeese, N.J. (Under Review). Tell Me What I Need to Know: Understanding Explainability and Autonomy Levels for Artificially Intelligent Teammates. *Transactions on Computer-Human Interaction*.
- UR.8 Mallick, R., **Flathmann, C.**, Duan, W., Schelble, S., McNeese, N. J., (Under Review). What You Say vs What You Do: Utilizing Positive Emotional Expressions to Relay AI Teammate Intent within Human-AI Teams International. *Journal of Human-Computer Studies*
- UR.7 **Flathmann, C.**, Duan, W., Zhang, R., & McNeese, N. J., (Under Review). Understanding the Differing Impacts of Teamwork and Taskwork Autonomy in Human-Autonomy Teams. *Human Factors*.
- UR.6 Duan, W., **Flathmann, C.**, McNeese, N. J., Scalia, M., Zhang, R., Gorman, J., Freeman, G., Zhou, S., Hauptman, A., & Yin, X., (Under Review). A Systematic Review and Meta-Analysis of Factors Influencing Trust in an Autonomous Teammate. *Human Factors*.
- UR.5 Schelble, B. G., **Flathmann, C.**, Mcdonald, J., Knijnenburg, B., Brady, C., & McNeese, N. J., (Under Review). Modeling Information Needs in Human-AI Teams: Improving AI Teammate Utility and Driving Shared Understanding. *Behavior and Information Technology*.
- UR.4 Hauptman, A., Mallick, R., **Flathmann, C.**, McNeese, N., (Under Review). Human Factors Considerations for the Context-Aware Design of Adaptive Autonomous Teammates. *Ergonomics*.
- UR.3 **Flathmann, C.**, Mallick, R., Brady, C., McNeese, N., O'Neill, T., & Madathil, K., (Under Review). Interdependence and Composition: Empirically Linking Two Fundamental Teamwork Concepts in Human-AI Teams. *Human-Computer Interaction*.
- UR.2 Zhang, R., Duan, W., **Flathmann, C.**, Freeman, G., Knijnenburg, B., & McNeese, N.J., (Under Review). Verbal vs. Visual: How Humans Perceive and Collaborate with AI Teammates Using Different Communication Modalities in Various Human-AI Team Compositions. *ACM Computer Supported Cooperative Work*.
- UR.1 Schelble, B., Lancaster, C., Sengupta, S., Freeman, G., **Flathmann, C.**, & McNeese, N.J., (Under Review). Leveraging AI Teammate Behaviors to Support Effective Team Process Execution and Develop Situational

Awareness. *IEEE Transactions on Social Computing Systems*.

Book Chapters:

- B.2 **Flathmann, C.**, Schelble, B.G., & McNeese, N.J. (2023). Refocusing Human-AI Interaction Through a Teamwork Lens. Book Chapter in *Handbook on Virtual Work*. Edward Elgar Publishing.
<https://doi.org/10.4337/9781802200508.00013>
- B.1 Rapa, L. J., Marshall, J. C., Madison, S. M., **Flathmann, C.**, Knijnenburg, B. P., & McNeese, N. J. (2022). Clemson University's Teacher Learning Progression Program: Personalized Advanced Credentials for Teachers. In *Handbook of Research on Credential Innovations for Inclusive Pathways to Professions* (pp. 313-334). IGI Global. <http://doi.org/10.4018/978-1-7998-3820-3.ch016>

Conference Full Papers (Referred):

- C.10 Guo, L., **Flathmann, C.**, Anaraky, R., McNeese, N., & Knijnenburg, B. (2022) The Effect of Recommendation Source and Justification on Professional Development Recommendations for High School Teachers. *HT'22: 33rd ACM Conference on Hypertext and Social Media*.
<https://doi.org/10.1145/3511095.3531280>
- C.9 **Flathmann, C.**, Schelble, B. G., & McNeese, N. J. (2021, September). Fostering Human-Agent Team Leadership by Leveraging Human Teaming Principles. In *2021 IEEE 2nd International Conference on Human-Machine Systems (ICHMS)* (pp. 1-6). IEEE. <https://doi.org/10.1109/ICHMS53169.2021.9582649>
- C.8 **Flathmann, C.**, Schelble, B. G., Zhang, R., & McNeese, N. J. (2021, July). Modeling and Guiding the Creation of Ethical Human-AI Teams. In *Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society* (pp. 469-479). <https://doi.org/10.1145/3461702.3462573>
- 🏆C.7 Schelble, B., **Flathmann, C.**, Canonico, L. B., & Mcneese, N. (2021, January). Understanding human-AI cooperation through game-theory and reinforcement learning models. In *Proceedings of the Annual Hawaii International Conference on System Sciences*. Nominated for Best Paper
<http://dx.doi.org/10.24251/HICSS.2021.041>
- 🏆C.6 **Flathmann, C.**, Schelble, B., Tubre, B., McNeese, N., & Rodeghero, P. (2020, November). Invoking Principles of Groupware to Develop and Evaluate Present and Future Human-Agent Teams. In *Proceedings of the 8th International Conference on Human-Agent Interaction* (pp. 15-24). Awarded Overall Best Paper
<https://doi.org/10.1145/3406499.3415072>
- C.5 Schelble, B. G., **Flathmann, C.**, & McNeese, N. (2020, November). Towards meaningfully integrating human-autonomy teaming in applied settings. In

Proceedings of the 8th International Conference on Human-Agent Interaction (pp. 149-156). <https://doi.org/10.1145/3406499.3415077>

- C.4 Musick, G., Maloney, D., **Flathmann, C.**, McNeese, N. J., & Walton, J. (2020, December). Differentiated Instruction further Realized through Teacher-Agent Teaming. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 64, No. 1, pp. 1318-1322). Sage CA: Los Angeles, CA: SAGE Publications. <https://doi.org/10.1177%2F1071181320641315>
- C.3 **Flathmann, C.**, McNeese, N., & Canonico, L. B. (2019, November). Using human-agent teams to purposefully design multi-agent systems. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 63, No. 1, pp. 1425-1429). Sage CA: Los Angeles, CA: SAGE Publications. <https://doi.org/10.1177%2F1071181319631238>
- C.2 Canonico, L. B., **Flathmann, C.**, & McNeese, N. (2019, November). Collectively intelligent teams: Integrating team cognition, collective intelligence, and ai for future teaming. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 63, No. 1, pp. 1466-1470). Sage CA: Los Angeles, CA: SAGE Publications. <https://doi.org/10.1177%2F1071181319631278>
- C.1 Canonico, L. B., **Flathmann, C.**, & McNeese, N. (2019, November). The wisdom of the market: Using human factors to design prediction markets for collective intelligence. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 63, No. 1, pp. 1471-1475). Sage CA: Los Angeles, CA: SAGE Publications. <https://doi.org/10.1177%2F1071181319631282>

Workshop Papers & Organization (Peer Reviewed):

- WP.4 **Christopher Flathmann,** and Nathan J. McNeese (2022). Understanding the Criticality of Human Adaptation when Designing Human-Centered AI Teammates 2022 NuerIPS workshop on Human-Centered Artificial Intelligence Virtual, December 9, 2022.
- WP.3 Beau G. Schelble, **Christopher Flathmann,** Scalia, M., Zhou, S., Chris Myers, Nathan J. McNeese, Jamie Gorman, Guo Freeman (2022). Addressing the Spread of Trust and Distrust in Distributed Human-AI Teaming Constellations. Workshop on Trust and Reliance in AI-Human Teams (TRAIT). 2022 ACM Conference on Computer-Human Interaction (CHI'22). New Orleans, LA. April 30th, 2022.
- WP.2 Guo, L., Anaraky, R., **Flathmann, C.**, McNeese, N.J., Knijnenburg, B. (2021). How to Recommend Professional Development Pathways to High School Teachers. Workshop on Human-Machine Partnerships in the Future of Work: Exploring the Role of Emerging Technologies in Future Workplaces. 2021

ACM Conference on Computer Supported Cooperative Work (CSCW'21). Virtual. Oct. 23rd, 2021.

- WP.1 Schelble, B.G., **Flathmann, C.**, McNeese, N.J. (2021). Reducing Bias by Prioritizing Multi-Cultural Human-Agent Teams. Workshop on Human-Machine Partnerships in the Future of Work: Exploring the Role of Emerging Technologies in Future Workplaces. *2021 ACM Conference on Computer Supported Cooperative Work (CSCW'21)*. Virtual. Oct. 23rd, 2021.

Research Posters:

- P.2 **Flathmann, C.**, Schelble, B.G., & McNeese, N.J. (2020, September). Creating Human-Oriented Multi-Agent Teams. In *Insights @ BMW Manufacturing Co. LLC*. Greenville, SC.
- P.1 **Flathmann, C.** and Nathan McNeese. 2020. Using Human-Agent Teams to Purposefully Design Multi-Agent Teams. *Clemson 2019 Research Symposium*, 12 April 2019

Presentations (Invited, Conference, & Program Reviews):

- PRE.7 Reshaping Human Roles in Future Smart Manufacturing Environments. AMFG 6800. September 2022.
- PRE.6 Connecting and Leveraging Physical and Digital Dimensions to Advance Human-Autonomy Teaming. Office of Naval Research Annual Program Review Meeting. September 2022.
- PRE.5 The role of AI in Future Manufacturing Environments. AMFG 6800. September 2021.
- PRE.4 Fostering Human-Agent Team Leadership by Leveraging Human Teaming Principles. IEEE ICHMS. September 2021.
- PRE.3 Contributing to the NRT Structure and Content. NRT Annual Meeting. January 2021.
- PRE.2 Invoking Principles of Groupware to Develop and Evaluate Present and Future Human-Agent Teams. Human-Agent Interaction. October 2020.
- PRE.1 Using Human-Agent Teams to Purposefully Design Multi-Agent Systems. Human Factors and Ergonomics Society Annual Meeting. November 2019.

Student Advising

As a Research Assistant Professor at Clemson University

PhD Student Mentorship

2022-present Rohit Mallick- PhD, Human-Centered Computing (*multiple projects: 10 hours/week*)

Undergraduate Students

2021-present Jennifer Hsu BS, Computer Science
(*multiple projects: 10 hours/week*)

2021-present Christian Ihekweazu BS, Computer Science
(*multiple projects: 10 hours/week*)

2022-present Noah Tavarez BS, Computer Science
(*multiple projects: 10 hours/week*)

2022-present Jake Macdonald BS, Computer Science
(*multiple projects: 10 hours/week*)

2021-2023 Alyssa Williams BS, Computer Science
(*multiple projects: 10 hours/week*)

As a PhD Student & Reserach Assistant at Clemson University

PhD Students

2020-2022 Geoffery Musick- PhD, Human-Centered Computing

Undergraduate Students

2018-2020 Casey Hird- BS, Computer Engineering (*multiple projects: 10 hours/week*)

2019-2022 Steve Russell- BS, Computer Science (*multiple projects: 10 hours/week*)

2020-2022 Wesley Everett- BS, Computer Science (*UPIC Intern*)

2020-2021 Top Lee- BS, Computer Science (*multiple projects: 10 hours/week*)

Teaching Experience

Clemson University

Courses Taught

Spring 2024 **Lead Instructor** CPSC 4440/6440: Cloud Computing Architecture (Planned)

Fall 2023 **Lead Instructor** CPSC 9500: School of Computing Seminar

- 2021-2023 **Recurring Guest Lecturer** HCC 8500: The Science of Teamwork and Technology
- Fall 2021 **Recurring Guest Lecturer** CPSC 4140: Human and Computer Interaction
- 2020-2021 **Volunteer Graduate Teaching Assistant** AMFG 6200: Collaboration and Teamwork in Manufacturing Systems
- 2017 **Undergraduate Teaching Assistant** CPSC 2120: Algorithms and Data Structures

Professional Activities

Memberships

- 2020- **Member** Association for Computing Machinery (ACM)
- 2023- **Member** Human-Factors and Ergonomic Systems Society

Reviewing

Journals

- 2023- Applied Artificial Intelligence
- 2022- Journal of Field Robotics
- 2022- Computers in Human Behavior
- 2021- ACM Transactions on Human-Robot Interaction
- 2021- Journal of Cognitive Engineering and Decision Making
- 2020- Human Factors: The Journal of the Human Factors and Ergonomics Society

Conferences

- 2021- ACM Computer-Human Interaction (CHI)
- 2021- ACM/IEEE Human-Robot Interaction (HRI)
- 2021- IEEE International Conference on Tools with Artificial Intelligence (ICTAI)
- 2020- ACM Computer Supported Cooperative Work (GROUP)
- 2020- Human Factors and Ergonomics Society Annual Meeting (HFES)
- 2020- Winter Simulations Conference (WSC)
- 2020- Military Health System Research Symposium (MHSRS)

Professional Community/National Service

2021 Presenter, National Research Traineeship, "Contributing to the NRT Structure and Content"

Society/International Service

2023 User Modeling, Adaptation, and Personalization (UMAP) Late-Breaking Work Program Committee Member

University Service

University Service/Representation

Clemson University

2023 United States Army Centcom Visitor Host

2023 United States Air Force Academy Visiting Cadet Host

2023 Robotics Demonstration Lead @ Clemson Elementary STEM Night

2019 Visiting German Computing Graduate Student Group Tour Guide

Honors & Awards

2023 ACM GROUP Honorable Mention Best Paper Award

2021 HICSS Best Paper Nomination

2020 Overall Best Paper Award for International Conference on Human-Agent Interaction (HAI)

2020 Top Papers of International Conference on Human-Agent Interaction (HAI)

2019 Clemson [Three Minute Thesis](#) Finalist for the College of Computing, Engineering, and Applied Science

2018 International Collegiate Programming Contest Regional Qualifier, Top Clemson Team

2017 DuPont Undergraduate Project of the Year: Smart Aiding Application for Travel Safety