

Christopher Flathmann

Curriculum Vitae

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Education

- 2019–2022 **PhD, Human Centered Computing**, *Clemson University, Clemson, South Carolina*.
Advisor: **Nathan McNeese**
- 2018 **BS Computer Science**, *GPA: 3.89, Clemson University, Clemson, South Carolina*.

Work Experience

- 2019–Present **Clemson University** Graduate Research Assistant, **Team Research Analytics in Computational Environments (TRACE)**. Senior Lead PhD student researching human-AI teamwork, specifically the trade off of influence between humans and AI systems in the coming years.
- 2018 **Clemson University** Undergraduate Research Assistant, **Data Intensive Computing Ecosystems Lab**. Researched the effects of latency on high performance computing clusters in commercial cloud environments.
- 2018 **Amazon** Software Development Engineer Intern, Financial Technology. Created and evaluated a system for email matching payments and responses for financial collections using AWS EC2, S3, and Lambda.
- 2017 **Clemson University** Undergraduate Teaching Assistant for Algorithms and Data Structures in C++ for **Dr. Brian Dean**. Taught labs, held office hours for undergraduate students, and helped design and proctor programming exams.
- 2017 **Michelin** Software Development Engineer Intern for Research and Development. Designed software in C# to manage Agile Teams' members, software responsibilities, and skills.

Funding and Awards

- 2019 - 2020 NSF/NRT **Technology-Human Integrated Knowledge Education and Research** Fellow
- 2019 Clemson **Three Minute Thesis** Finalist for the College of Computing, Engineering, and Applied Science
- 2017 DuPont Undergraduate Project of the Year: Smart Aiding Application for Travel Safety

Research Interests

Human-Centered Artificial Intelligence, Human-Machine Influence, Applied Human-Machine Teamwork, Ethical Design of AI

Current Funding Project

Clemson University Teacher Learning Progression

Collaborators: Nathan McNeese, Bart Knijnenberg, Reza Anaraky, CU Education Department

- Researching, designing, and implementing an intelligent recommender system with the goal of guiding and aiding in the professional development of South Carolina middle school teachers. Main responsibilities include analyzing survey data and building the recommendation platform.

Relevant Coursework

- Artificial Intelligence
- The Science of Teamwork and Technology
- Digital and Smart Manufacturing
- Teamwork in Manufacturing
- Measurement and Evaluation of Human Centered Computing Systems
- Research Methods for Human Centered Computing
- Applied Data Science
- Human Perceptions and Behaviors

Publications

Referred Journal Articles

- [J.3] Schelble, B., **Flathmann, C.**, McNeese, N.J., O'Neill, T., Pak, R., & Namara, M. (2022; accepted). Investigating the Effects of Perceived Teammate Artificiality on Human Performance and Cognition. *International Journal of Human-Computer Interaction*.
- [J.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.
- [J.1] Schelble, B.G., **Flathmann, C.**, McNeese, N.J., Freeman, G., & Mallick, R. (2021, January). 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>

Book Chapters

- [B.2] **Flathmann, C.**, Schelble, B.G., & McNeese, N.J. (in press). Refocusing Human-AI Interaction Through a Teamwork Lens. Book Chapter in *Handbook on Virtual Work*. Edward Elgar Publishing.

- [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 Papers

- [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*.
- [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 (Refereed)

- [W.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.
- [W.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.
- [W.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

Grant and Award Contribution

As the senior Ph.D. student in TRACE Research Group, I have had the opportunity to lead the writing of multiple grant and funding opportunities.

Funded The Spread of Trust and Distrust in Distributed Human-Autonomy Teaming Constellations. AFOSR. **\$1,302,657**

Funded Connecting and Leveraging Physical and Digital Dimensions to Advance Human-Autonomy Teaming. ONR DURIP. **\$295,792**

Funded Considerations of Ethical and Unethical Behavior on Trust in Human-Autonomy Teaming. AFOSR. **\$586,538**

Funded Promoting Human Interpretation and Interaction to Mitigate Bias in Artificial Intelligence Assisted Decision Aids. ONR. **\$444,368**

Teaching Experience

Courses Taught

- Repeated Guest Lecturer CPSC 4140: Human and Computer Interaction (Fall 2021)
- Guest Lecturer for HCC 8500: The Science of Teamwork and Technology (Spring 2021)
- Graduate Assistant Lecturer for AMFG 6200: Collaboration and Teamwork in Manufacturing Systems (Fall 2020 & Fall 2021)

Student Mentoring

THINKER Mentor Program

- Geoffery Musick- PhD Human-Centered Computing, *Clemson University, Fall 2021 - Present*
- Steven Russell- BS Computer Science, *Clemson University, Fall 2020 - Present*

TRACE Research Group

- Casey Hird- BS Math, *Clemson University, Fall 2019 - Spring 2020*
- Dylan Cathapermal- BS Computer Science, *Clemson University, Fall 2019 - Spring 2020*

Professional Activities

Reviewing

Journals

Human Factors, since 2020

Transactions on Human-Robot Interaction, since 2021

Journal of Cognitive Engineering and Decision Making, since 2021

Conferences

ACM Computer-Human Interaction (CHI), since 2021

ACM/IEEE Human-Robot Interaction (HRI), since 2021

IEEE International Conference on Tools with Artificial Intelligence (ICTAI), since 2021

ACM Computer Supported Cooperative Work (GROUP), since 2020

Human Factors and Ergonomics Society Annual Meeting (HFES), since 2020

Winter Simulations Conference (WSC), since 2020

Military Health System Research Symposium (MHSRS), since 2020

Professional Community/National Service

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