



Christopher Flathmann, PhD

Assistant Professor, Human-Centered Computing
Director, Building Intelligent Goals for Collaborative AI
Technology (BIG CAT) Research Group

Co-Director, Clemson University Center for Human-AI
Interaction, Collaboration, and Teaming

School of Computing
College of Engineering, Computing, and Applied Sciences
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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
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Education

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

Appointments

Primary

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

Secondary

- 2024- **Director**, Building Intelligent Goals for Collaborative AI Technologies (BIG CAT) Research Group, Clemson University;
- 2024- **Co-Director**, Center for Human-AI Interaction, Collaboration, and Teaming (CU-CHAI), Clemson University;
- 2023-2024 **Associate Director**, Team Research Analytics in Computational Environments (TRACE) Research Group, Clemson University;
<https://computing.clemson.edu/trace/>

Achievement Highlights

- Over **25 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): \$3,479,441

Flathmann Allocation at Clemson: \$934,382

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

- | | |
|-------------|---|
| 2024 | Leveraging Adaptive Autonomous Teammates to Enable Resilience and Situational Awareness in Human-Autonomy Teams. ARL. (Co-PI, 45%)
\$212,718 |
| 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 |
| 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.22 Schelble, B. G., **Flathmann, C.**, Macdonald, J. P., Knijnenburg, B., Brady, C., & McNeese, N. J. (2024). Modeling perceived information needs in human-AI teams: improving AI teammate utility and driving team cognition. *Behaviour & Information Technology*, 1–24.
<https://doi.org/10.1080/0144929X.2024.2396476>
- JA.21 Mallick, R., **Flathmann, C.**, Duan, W., Schelble, B. G., & McNeese, N. J. (2024). 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*, 103355.
<https://doi.org/10.1016/j.ijhcs.2024.103355>
- JA.20 Hauptman, A. I., Mallick, R., **Flathmann, C.**, & McNeese, N. J. (2024). Human factors considerations for the context-aware design of adaptive autonomous teammates. *Ergonomics*, 1-17.
<https://doi.org/10.1080/00140139.2024.2380341>
- JA.19 Hauptman, A. I., **Flathmann, C.**, & McNeese, N. J. (2024). Adapting to the human: A systematic review of a decade of human factors research on adaptive autonomy. *Applied Ergonomics*, 120, 104336.
<https://doi.org/10.1016/j.apergo.2024.104336>
- JA.18 Hauptman, A. I., Schelble, B. G., Duan, W., **Flathmann, C.**, & McNeese, N. J. (2024). Understanding the influence of AI autonomy on AI explainability levels in human-AI teams using a mixed methods approach. *Cognition, Technology & Work*, 1-21. <https://doi.org/10.1007/s10111-024-00765-7>
- JA.17 **Flathmann, C.**, Duan, W., McNeese, N., Hauptman, A., & Zhang, R. (2024). Empirically Understanding the Potential Impacts and Process of Social Influence in Human-AI Teams. *Proceedings of the ACM on Human-Computer Interaction*. (CSCW). <https://doi.org/10.1145/3637326>
- JA.16 Zhang, R., **Flathmann, C.**, Duan, W., Schelble, B.G., McNeese, N.J., & Knijnenburg, B. (2024). 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.15 O'Neill, T. A., **Flathmann, C.**, McNeese, N. J., Jones, S. K., & Schelble, B. (2024). 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*.
<https://doi.org/10.5465/amd.2024.0009>

- JA.14 Musick, G., Duan, W., Sengupta, S., **Flathmann, C.**, Knijnenburg, B., & McNeese, N.J., (2024). To share or not to share: Understanding and modeling individual disclosure preferences in recommender systems for the workplace. *ACM GROUP*. <https://doi.org/10.1145/3633074>
- JA.13 Lancaster, C., Schulenberg, K., **Flathmann, C.**, McNeese, N.J., & Freeman, G., (2024). "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 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.11 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.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**

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.10 Introducing Clemson University's New AI Entrepreneur Competition on AI for Social Good. Clemson University. March 2024.

- Pre.9 Understanding how Robotics will Evolve the Future of Teamwork. HCC 8500. January 2024
- PRE.8 Leveraging AI Technology as a Key Component of Future Manufacturing Strategies. AMFG 6800. October 2023.
- PRE.6 Understanding the Impact of Trust and Ethics in Human-Autonomy Teaming. AFOSR Trust and Influence Annual Program Review Meeting. September 2022.
- 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. ONR Science of Autonomy 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.

Teaching

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 Taverez 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
Spring 2024 Students' Instructor Evaluation: 4.51/5

Spring 2024 **Lead Instructor** CPSC 9500: School of Computing Seminar

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

2024- Applied Ergonomics

2024- Behavior and Information Technology

2023- ACM Transactions on Interactive Intelligence Systems, *Distinguished Reviewer

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

2024- ACM Collective Intelligence

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)

Funding Agencies

2024- NASA Human Exploration Research Opportunities, panelist

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