Olivia B. Newton, Ph.D.

Email • Website
GitHub • LinkedIn

EDUCATION

2022	**Ph.D.** in Modeling and Simulation, College of Engineering and Computer Science, University of Central Florida Dissertation: *Modeling the Effects of Diversity and Corporations on Participation Dynamics in Free/Libre and Open Source Software Ecosystems* Committee: Stephen M. Fiore (Chair), Carol Saunders, Gita Sukthankar, Kelly Blincoe, Ivan Garibay
2017	**M.Sc.** in Modeling and Simulation, UCF
2015	**Graduate Certificate** in Cognitive Science, UCF
2013	**B.Sc.** in Psychology, UCF

EXPERIENCE

Research

Current	**Postdoctoral Scholar**, UCF Management of research activities and staff for funded projects (National Science Foundation[1], Minerva Research Initiative[2]) using mixed methods to model human behavior, cognition, and performance in sociotechnical systems and with emerging tech.
2016-22	**Graduate Research Assistant**, Cognitive Sciences Lab, UCF
2015-16	**Research Assistant**, Human-Agent Teaming Lab, UCF
2012-14	**Research Associate**, ClearView Market Research

Teaching

2020-21	**Graduate Teaching Assistant**, Modeling and Simulation Program, UCF Perspectives on Modeling and Simulation (M&S) (12 MSc/PhD students) Understanding Humans for M&S (19 MSc/PhD students) Cybersecurity: A Multidisciplinary Approach (30 MSc/PhD students)
2017-23	**Guest Lecturer**, Cognitive Sciences Program, UCF Topics in Cognitive Science (Approx. 10 grad students per term) Research Methods in Cognitive Science (Approx. 10 grad students per term)

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[1] *Understanding Team Science to Help Reinvent Scientific Talent*, National Science Foundation (PI: Stephen M. Fiore). Role: project lead; measurement, analysis, publications
[2] *Cognition in Support of Future Space Missions*, Minerva Research Initiative (PI: Stephen M. Fiore). Role: project manager; experiment design, publications.

CONTRACT AWARDS

Better Scientific Software Fellowship (Sponsors: Department of Energy and National Science Foundation). Improving the Effectiveness of Scientific Software Teams Through Collaborative Learning. **Principal Investigator: Olivia B. Newton**. March 2024 to March 2025. $25,000.

FELLOWSHIPS AND RECOGNITION

2023	Preeminent Postdoctoral Program, UCF (salary supplement + travel allowance)
	University Award for Outstanding Dissertation, UCF ($1,500)
	Best Paper Award, Gender Equity Workshop @ ICSE
	SIGSOFT CAPS: ICSE 2023 Travel Grant, ACM SIGSOFT ($1,000)
2020	RADM Fred Lewis I/ITSEC Postgraduate Scholarship, NTSA ($10,000)
	Doctoral Research Support Award, UCF ($1,000)
2017-19	Graduate Presentation Fellowship, UCF ($1,500)
2017, 18	2nd Place, Best Student Paper, Cognitive Engineering Technical Group, HFES ($500)
2016-21	McKnight Doctoral Fellowship, Florida Education Fund ($85,000)

PUBLICATIONS   citations: 243; h-index: 8; i10-index: 8

Journal Articles

Newton, O. B., Saadat, S., Song, J., Sukthankar, G., & Fiore, S. M. (2022). EveryBOTy counts: Examining the relationship between bots and productivity in open source software teams. Topics in Cognitive Science. DOI: 10.1111/tops.12613

Stowers, K., Kasdaglis, N., Rupp, M. A., **Newton, O. B.**, Chen, J.Y.C., & Barnes, M.J. (2020). The IMPACT of agent transparency on human performance. IEEE Transactions on Human-Machine Systems, 50(3). 245–253. DOI: 10.1109/THMS.2020.2978041

Newton, O. B. & Stanfill, M. (2020). My NSFW video has partial occlusion: deepfakes and the technological production of nonconsensual pornography. Porn Studies, 7(4). 398–414. DOI: 10.1080/23268743.2019.1675091

Contributed Volumes

Newton, O. B., Wiltshire, T. J., & Fiore, S. M. (2018). Macrocognition in teams and metacognition: Developing instructional strategies for complex collaborative problem solving. In J. Johnston, R. Sottilare, A. Sinatra, & C. S. Burke (Eds.) Building Intelligent Tutoring Systems for Teams: What Matters. Research on Managing Groups and Teams (Vol. 19). Bingley, UK: Emerald Publishing Group. DOI: 10.1108/S1534-085620180000019006

Conference Proceedings

Newton, O. B., Fiore, S. M., & Song, J. (2023). Validation of a theoretical framework of task complexity for research on visualization in support of decision making. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 67(1). DOI:10.1177/21695067231196237

Newton, O. B. & Fiore, S. M. (2023). Leveraging corporate engagement for diversity in free/libre and open source software projects. The Fourth Workshop on Gender Equity, Diversity, and Inclusion in Software Engineering at the 45th International Conference on Software Engineering (GE@ICSE2023). DOI: 10.1109/GEICSE59319.2023.00010 Best Paper Award

Saadat, S., **Newton, O. B.**, Sukthankar, G., & Fiore, S. M. (2020). Analyzing the productivity of GitHub teams based on formation phase activity. 2020 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT'20). DOI: 10.1109/WIIAT50758.2020.00027

Newton, O. B. & Fiore, S. M. (2020). What's the difference? Reconciling knowledge structure concepts to aid AI development for human-machine teaming. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 64(1). 1110–1114. DOI: 10.1177/1071181320641267

Winter, R., Scheinert, S., Stanfill, M., Salter, A., **Newton, O. B.**, Song, J., Rand, W., Fiore, S. M., & Garibay, I. (2020). A taxonomy of user actions on social networking sites. Proceedings of the 31st ACM Conference on Hypertext and Social Media (HT2020). 233–234. DOI: 10.1145/3372923.3404808

McGowin, G., Xi, Z., **Newton, O. B.**, Song, J., Sukthankar, G., Fiore, S. M., & Oden, K. (2020). Examining enhanced learning diagnostics in virtual reality flight trainers. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 64(1). 1476–1480. DOI: 10.1177/1071181320641351

Xi, Z., **Newton, O. B.**, McGowin, G., Sukthankar, G., Fiore, S. M., & Oden, K. (2020). Predicting student flight performance with multimodal features. In R. Thomson, H. Bisgin, C. Dancy, A. Hyder, & M. Hussain (Eds.), SBP-BRiMS 2020: Social, Cultural, and Behavioral Modeling. Lecture Notes in Computer Science (Vol. 12268, pp. 277–287). Springer International Publishing. DOI: 10.1007/978-3-030-61255-9_27

Newton, O. B., Fiore, S. M., & Song, J. (2019). Expertise and complexity as mediators of knowledge loss in open source software development. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 63(1). 1580–1584. DOI: 10.1177/1071181319631445

Song, J., **Newton, O. B.**, Fiore, S. M., Pittman, C., & LaViola, J. J. (2019). Examining training comprehension and external cognition in evaluations of uncertainty visualizations to support decision making. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 63(1). 1654–1658. DOI: 10.1177/1071181319631520 Best Student Paper Award | Training TG

Schreck, J., **Newton, O. B.**, Song, J., & Fiore, S. M. (2019). Reading the mind in robots: How theory of mind ability alters mental state attributions during human-machine interactions. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 63(1). 1550–1554. DOI: 10.1177/1071181319631414

Garibay, I., Schiappa, M., Anagnostopoulos, G. C., [and 23 others, including **Newton, O. B.**]. (2019). Deep agent: Studying the dynamics of information spread and evolution in social networks. Proceedings of the 2019 International Conference of The Computational Social Science Society of the Americas. Springer Proceedings in Complexity. DOI: 10.1007/978-3-030-77517-9_11

Newton, O. B., Fiore, S. M., & Song, J. (2018). Developing theory and methods to understand and improve collaboration in open source software development on GitHub. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 62(1). 1118–1122. DOI: 10.1177/1541931218621256 2nd Place Best Student Paper Award | Cognitive Engineering TG

Song, J., **Newton, O. B.**, Fiore, S. M., Coad, J., Clark., J., Pittman, C., & LaViola, J. J. (2018). Examining the impact of training on visualization-supported decision making under uncertainty. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 62(1). 1449–1453. DOI: 10.1177/1541931218621329

Warta, S. F., **Newton, O. B.**, Song, J., Best, A., & Fiore, S. M. (2018). Effects of social cues and social signals in human-robot interaction during a hallway navigation task. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 62(1). 1128–1132. DOI: 10.1177/1541931218621258

Fiore, S. M., Song, J., **Newton, O. B.**, Pittman, C., Warta, S. F., & LaViola, J. J. (2018). Determining the effect of training on uncertainty visualization evaluations. In T. Z. Ahram & C. Falcão (Eds.), AHFE 2018: Advances in Usability, User Experience and Assistive Technology. Advances in Intelligent Systems and Computing (Vol. 794, pp. 141–152). Orlando, FL: Springer International Publishing. DOI: 10.1007/978-3-319-94947-5_14

Newton, O. B., Fiore, S. M., & LaViola, J. J. (2017). An external cognition framework for visualizing uncertainty in support of situation awareness. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 61(1), 1198–1202. DOI: 10.1177/1541931213601782 2nd Place Best Student Paper Award | Cognitive Engineering TG

Fiore, S. M., Warta, S., Best, A., **Newton, O. B.**, & LaViola, J. J. (2017). Developing a theoretical framework of task complexity for research on visualization in support of decision making under uncertainty. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 61(1), 1193–1197. DOI: 10.1177/1541931213601781

Stowers, K., Kasdaglis, N., **Newton, O. B.**, Lakhmani, S., Wohleber, R., & Chen, J. Y. C. (2016). Intelligent agent transparency: The design and evaluation of an interface to facilitate human and artificial agent collaboration. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 60(1), 1706–1710. DOI: 10.1177/1541931213601392

Kasdaglis, N., **Newton, O. B.**, & Lakhmani, S. (2014). System state awareness: A human centered design approach to awareness in a complex world. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 58(1), 305-309. DOI: 10.1177/1541931214581063

Preprints

Newton, O. B. & Song, J. (2022). Modeling gender differences in membership change in open source software projects. ArXiv:2206.08485 [Cs].

Saadat, S., **Newton, O. B.**, Sukthankar, G., & Fiore, S. M. (2020). Analyzing the productivity of GitHub teams based on formation phase activity. ArXiv:2011.03423 [Cs].

Garibay, I., Oghaz, T. A., Yousefi, N., [and 23 others, including **Newton, O. B.**]. (2020). Deep agent: Studying the dynamics of information spread and evolution in social networks. ArXiv:2003.11611 [Physics].

In Preparation and Under Review

Newton, O. B. & Fiore, S. M. (invited revision). Modeling participation and corporatization in service of diversity in free/libre and open source software projects. Journal of Systems and Software.

Newton, O. B. & Fiore, S. M. Learning in interdisciplinary science teams: A review and computational semantic analysis of measures. Target: Small Group Research.

Newton, O. B. & Fiore, S. M. Diversity and decision making in free/libre and open source software development. Target: Information Systems Research.

PRESENTATIONS AND PANELS

Peer Reviewed

Silva, A. C. & **Newton, O. B.** (2024, September). Psychological fidelity: A systematic review to support simulation-based training. Poster accepted at 2024 ASPIRE—the HFES International Annual Meeting, Phoenix, AZ.

Newton, O. B. & Fiore, S. M. (2023, October). Modeling the relationship between social diversity and organizational decision making in open collaborations in information systems. Paper presented at the 2023 INFORMS Annual Meeting, Phoenix, AZ.

Newton, O. B. & Fiore, S. M. (2023, July). Understanding the relationship between attitudes and behaviors towards interdisciplinary research and perceptions of team learning. Paper presented at the 2023 International Science of Team Science Conference, Bethesda, MD.

Fiore, S. M., **Newton, O. B.**, & DiazGranados, D. (2023, July). Social cognition and social facilitation: Exploring how cognitive tuning can improve knowledge integration in science teams. Poster presented at the 2023 International Science of Team Science Conference, Bethesda, MD.

Newton, O. B. & Fiore, S. M. (2023, July). A preliminary study of team learning in scientific software development. Poster presented at the 18th Annual Interdisciplinary Network for Group Research (INGRoup) Conference, Bellevue, WA.

Newton, O. B. & Fiore, S. M. (2023, June). Perceptions of collective learning in scientific software teams. Poster presented at the International Conference on Science of Science and Innovation, Evanston, IL.

Newton, O. B. & Fiore, S. M. (2022, August). Examining semantic similarity in team learning measures. Poster presented at the 2022 International Science of Team Science Conference, Online.

Fiore, S. M. & **Newton, O. B.** (2021, June). On-the-job (science) learning: Exploring the team processes supporting reciprocal learning in science teams. Paper presented at the 2021 International Science of Team Science Conference, Online.

Newton, O. B. (2020, January). Defining and promoting societal benefits in open source software development. Extended abstract presented at the GROUP4GOOD Workshop at the 2020 ACM International Conference on Supporting Group Work (GROUP), Sanibel Island, FL.

Kramer, W. S., Shuffler, M. L., Fiore, S. M., **Newton, O. B.**, Trainer, H. M. Agbonghae, C., Maupin, C. K., Carter, D. M., Nehl, E. J., Llewellyn, N. Moran, E., Summers, J. D. (2017, July). Creating expert teams: Advancing science team dynamics through research and theory from the study of groups and teams. Symposium at the 12th Annual Interdisciplinary Network for Group Research (INGRoup) Conference, St. Louis, MO.

Invited

Newton, O. B. (2023, July). DEI panel. Panelist at the International 2023 Science of Team Science Conference, Bethesda, MD.

Newton, O. B. (2022, July). Text-based exploratory analysis of team learning measurement. Panelist for Summer of Team Science: Team Learning at the International 2022 Science of Team Science Conference, Online.

Newton, O. B. (2021, November). Engineering roundtable. Panel Facilitator for the 37th Annual McKnight Fellows' Meeting, Tampa, FL.

Newton, O. B. (2019, December). Promoting women in the cyber workforce. Panelist for CyberTRAINsitions Workshop at the Annual Interservice/Industry Training, Simulation and Education Conference (I/ITSEC), Orlando, FL.

University Sponsored Research Forums

Newton, O. B. (2019, July). Diversity and change in 21st century work teams: Examining team composition, individual-level attributes, and membership change in open source software projects. Presented at the Cognitive Sciences Summer Lecture Series, UCF.

Newton, O. B. (2019, April). Expertise and complexity as mediators of knowledge loss in open source software development. Presented at the Annual School of Modeling, Simulation, and Training Day, UCF.

Newton, O. B. (2018, October). Collaboration in the modern workforce: Open source software development and social coding platforms. Presented at the University of Central Florida's Graduate Fellows Symposium: Excellence in Graduate Research, Orlando, FL.

TRAINING AND WORKSHOPS

2019 Graduate Workshop in Computational Social Science, Santa Fe Institute
2021 Preparing Tomorrow's Faculty Program, Faculty Center for Teaching & Learning, UCF
2022 INGRoup Developing Scholars Workshop, INGRoup

PROFESSIONAL SERVICE

Committees

Associate Chair, Late-Breaking Work, Program Committee for the ACM CHI Conference on Human Factors in Computing Systems (CHI 2024)

Associate Chair, Posters, Program Committee for the ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2023)

Member, Program Planning Committee for the International 2023 Science of Team Science Annual Conference (INSciTS 2023)

Communications Volunteer, Program Planning Committee for INSciTS 2022

Member, Program Publication Consortium Oversight Committee, Artificial Social Intelligence for Successful Teams Program, DARPA (2020)

Treasurer, Modeling and Simulation Knights, UCF Student Chapter of the Society for Modeling and Simulation International (2016-17)

Reviewing

Communications of the ACM
Human Factors: The Journal of the Human Factors and Ergonomics Society
Ergonomics
CogSci 2023, Cognitive Science Society
ACM CSCW (2019-21, 2023)
INSciTS 2023
INGRoup 2023
HFES International Annual Meeting (2016-20, 2023)

Conference Support

ACM CSCW 2022, ACM CHI Conference on Human Factors in Computing Systems 2022, Serious Play Conference 2022, HFES 2018, INSciTS 2017

Mentorship

Andy Silva, B.Sc. Psychology | Burnett Honors College
David Jensen, B.Sc. Mechanical Engineering | Burnett Honors College
Tyler Elliot, B.Sc. Biomedical Science, Minor: Medical Sociology | Accepted to UF M.D. Program
David Moore, B.Sc. Biology, Minor: Cognitive Sciences | Awarded merit-based scholarship

PROFESSIONAL MEMBERSHIPS

Association of Computing Machinery, Special Interest Groups:
1. Software Engineering (SIGSOFT)
2. Computer-Human Interaction (SIGCHI)
Institute for Operations Research and the Management Sciences
International Network for the Science of Team Science
Interdisciplinary Network for Group Research
Human Factors and Ergonomics Society

PRESS AND SCIENCE COMMUNICATION

UCF Today (2023, May). "Latina Alumna, Postdoctoral Researcher Inspiring Underrepresented Youth to Excel in Tech World."

Otronicon Interactive Technology Expo (2018, January). "Enactive and Extended Cognition for Complex Decision Making."

UCF Today (2017, December). "Students Earn National Honors for Papers about Robots, Visualization Tools."

TECHNICAL SKILLS

Expert: R, Python, HTML/CSS
Advanced: JavaScript, Java
Advanced Beginner: SQL, Ruby

Git • Jupyter Notebook • NetLogo • AnyLogic • SPSS • LaTeX • Adobe Photoshop • GNU Image Manipulation Program • Lucidchart • Qualtrics

LANGUAGES

Bilingual: English • Spanish
Elementary proficiency: French • Italian