Luke S. Snyder

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Education

2021-Present	**Ph.D.**, Computer Science & Engineering Advisor: Jeffrey Heer	University of Washington
2021-2023	**M.S.**, Computer Science & Engineering *DIVI : Dynamically Interactive Visualization* Advisor: Jeffrey Heer, Second Reader: Leilani Battle	University of Washington
2018-2020	**M.S.**, Computer Science *Predictive Visual Analytics of Social Media Data for Supporting Real-time Situational Awareness* Advisor: David Ebert Committee: Dan Goldwasser, Jeremiah Blocki	Purdue University
2014-2018	**B.S.**, Computer Science (Honors), Minor in Mathematics, *Summa Cum Laude* *An Agent-based Approach to Simulating the Minimum Wage Market* Advisor: Wing Ning Li Committee: Matthew Patitz, Dale Thompson	University of Arkansas

Publications

Journal Papers (peer-reviewed)

J5. **L. S. Snyder** and J. Heer. Divi : Dynamically interactive visualization. *IEEE Transactions on Visualization and Computer Graphics*, 30(1):403–413, Jan 2024

J4. M. M. Chiu, A. Morakhovski, D. Ebert, A. Reinert, and **L. S. Snyder**. Detecting covid-19 fake news on twitter : Followers, emotions, relationships, and uncertainty. *American Behavioral Scientist*, May 2023

J3. A. Reinert, **L. S. Snyder**, J. Zhao, A. S. Fox, D. F. Hougen, C. Nicholson, and D. S. Ebert. Visual analytics for decision-making during pandemics. *Computing in Science & Engineering*, 22(6):48–59, Nov 2020

J2. **L. S. Snyder**, Y.-S. Lin, M. Karimzadeh, D. Goldwasser, and D. S. Ebert. Interactive learning for identifying relevant tweets to support real-time situational awareness. *IEEE Transactions on Visualization and Computer Graphics*, 26(1):558–568, Jan 2020

J1. J. Zhao, M. Karimzadeh, **L. S. Snyder**, C. Surakitbanharn, Z. C. Qian, and D. S. Ebert. MetricsVis: A visual analytics system for evaluating employee performance in public safety agencies. *IEEE Transactions on Visualization and Computer Graphics*, 26(1):1193–1203, Jan 2020

Conference Papers (peer-reviewed)

C3. **L. S. Snyder**, J. Zhao, A. Reinert, G. Wang, and D. S. Ebert. PanViz 2.0: AI-driven visual analytics to adapt to the novel challenges of covid-19. *Proceedings of the Hawaii International Conference on System Sciences*, HICSS-54, Jan 2021

C2. **L. S. Snyder**, M. Karimzadeh, C. Stober, and D. S. Ebert. Situational awareness enhanced through social media analytics: A survey of first responders. *IEEE International Symposium on Technologies for Homeland Security*, HST 2019, pp. 1–8. IEEE, Nov 2019

C1. **L. S. Snyder**, M. Karimzadeh, R. Chen, and D. S. Ebert. City-level geolocation of tweets for real-time visual analytics. *Proceedings of the 3rd ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery*, GeoAI 2019, pp. 85–88. ACM, Nov 2019

Book Chapters

B1. M. Karimzadeh, J. Zhao, G. Wang, **L. S. Snyder**, and D. S. Ebert. Human-guided visual analytics for big data. *Big Data in Psychological Research*, pp. 145–177. American Psychological Association, Washington, DC, USA, Jan 2020

Research and Technical White Papers

T1. M. Karimzadeh, **L. S. Snyder**, and D. S. Ebert. Geovisual analytics and interactive machine learning for situational awareness. *US National Report to the International Cartographic Association*, ICC 2019. Tokyo, Japan, 2019

Conference Presentations

P2. M. Karimzadeh, **L. S. Snyder**, and D. S. Ebert. City-level geolocation of tweets for real-time visual analytics. *GeoAI Symposium*: *AI for Geographic Information Retrieval and Geo-Text Analysis*, virtual session, AAG Annual Meeting. Denver, CO, USA, 2019

P1. M. Karimzadeh, **L. S. Snyder**, and D. S. Ebert. Interactive deep learning for identifying relevant social media posts in crisis monitoring. *GeoAI and Deep Learning Symposium : Deep Learning in Geography*, AAG Annual Meeting. Washington, DC, USA, 2019

Research Experience

University of Washington IDL Lab
Graduate Research Assistant with Jeffrey Heer — 2021-Present

2023-Present **Authoring Tools for Interactive Visualization in Scientific Communication**
Investigating tools and workbench for improving authoring of interactive charts in scientific reading.

2021-2023 **Dynamic Interaction for Static Visualizations**
Orchestration of interactions within and across static SVG visualizations without any prior specification, driven by SVG analysis and automatic handling of user input.
Relevant publications : J5

Adobe Research
Research Scientist Intern with Jane Hoffswell & Ryan Rossi — 2022

2022 **Interaction Techniques for Exploratory Data Visualization on Mobile Devices**
Investigating new exploratory interactions in empirical user studies for improved data visualization on mobile devices.

University of Oklahoma DISC Institute
Research Associate with David Ebert — 2020-2021

2020-2021 **Visual analytics for decision-making during pandemics**
Investigating novel visual analytics techniques for decision-making during COVID-19, including interactive interdiction planning and human-guided parameter inference for disease spread models.
Relevant publications : J4, J3, C3

Purdue University VACCINE Lab
Graduate Research Assistant with David Ebert — 2018-2020

2018-2020 **Interactive learning for identifying relevant tweets to support real-time situational awareness**
Designing an interactive machine learning framework and visual analytics system to rapidly identify relevant information from streaming text data to facilitate real-time situational awareness.
Relevant publications : J2, T1, P1

2019 **City-level geolocation of tweets for real-time visual analytics**
Developing a visual analytics approach for real-time geolocation inference of non-geotagged streaming text data to support situational awareness during large-scale events.
Relevant publications : C1, P2

2019 **Situational awareness enhanced through social media analytics : A survey of first responders**
Investigating first responders' use of social media data, barriers and gaps between existing social media analytic systems and current research, and opportunities for future research directions.
Relevant publication : C2

University of Arkansas Department of Computer Science and Computer Engineering
Undergraduate Thesis Project with Wing Ning Li — 2017-2018

2017-2018 **Agent-based modeling of minimum wage market dynamics**
Modeling market economy dynamics with NetLogo agent-based simulation environment to estimate short- and long-term employment effects of a minimum wage increase.

Industry Experience

Southwest Power Pool, Little Rock, AR
Information Technology Intern 2016

2016 **Staging Dependency Launcher**
Implementing the Staging Dependency Launcher, an application for automatically executing stored procedures and Informatica workflows based on external dependency mappings.
Utilizing Java, JMS/ActiveMQ, Oracle database, and Vaadin UI framework for full stack development.

Teaching Experience

2023	TA for CSE 512 : Data Visualization at University of Washington
2018-2020	Graduate Mentor for four undergraduate students participating in the Vertically Integrated Projects (VIP) at Purdue University
Summer 2019	Graduate Mentor for two students in the Summer Undergraduate Research Fellowship (SURF) program at Purdue University
2015-2016	Tutor for University Physics I, University Chemistry I and II, College Algebra, Plane Trigonometry, and Calculus I and II at University of Arkansas Class+ Center

Honors and Awards

2020	Nominated by Purdue University for Midwestern Association of Graduate Schools Distinguished Masters Thesis Award
2018	First-ranked Senior Scholar awarded by University of Arkansas
2018	Most Outstanding Senior in Computer Science awarded by University of Arkansas
2018	Honors College Research Grant awarded by University of Arkansas
2018	J.B. Hunt Hackathon Winner
2014-2018	Chancellor and Dean's List awarded by University of Arkansas
2015	Freshman of the Year Finalist awarded by the University of Arkansas College of Engineering
2015	Highest university grade in Macroeconomics at the University of Arkansas
2014	Highest university grade in Calculus II at the University of Arkansas

Scholarships

2017-2018	University of Arkansas Taft-O'Neal-Geels Scholarship
2016-2018	University of Arkansas College of Engineering Scholarship
2016-2018	University of Arkansas Ed and Karlee Bradberry Access Arkansas Scholarship
2016	Arkansas Academy of Computing Scholarship
2015-2016	University of Arkansas Winthrop Rockefeller Scholarship
2014-2018	University of Arkansas Chancellor's Community Scholarship
2014-2018	Arkansas Academic Challenge Scholarship
2014-2018	Arkansas Governor's Scholarship
2014-2018	University of Arkansas Band Scholarship

Professional Services

Organizations

Secretary, Association for Computing Machinery (ACM), University of Arkansas, 2016-2017
Honors College Ambassador, University of Arkansas, 2015-2018

Conference Reviewer

The IEEE Conference on Visual Analytics Science and Technology (IEEE VAST 2019)

Hawaii International Conference on System Sciences (HICSS-53, 54)