# Shuo Niu, PhD | Clark University

Assistant Professor | Department of Computer Science

# **Research Interests**

My research field is human-computer interaction and social computing. I study video-sharing and its collaborative and community activities on social media. I analyze extensive video data to examine the emerging interactions surrounding user-generated videos and creator-fan relationships. I use machine learning, natural language processing, and crowdsourcing to reveal video patterns and video-sharing platforms' roles and affordances. My research explores the possibilities of using online videos to support mental health, social and emotional well-being, and awareness of social justice issues.

## **Appointments**

2019 -	Clark University, Worcester, MA			
	Assistant Professor, Department of Computer Science			
2013 - 2019	) Virginia Tech, Blacksburg, VA			

Teaching Assistant, Department of Computer Science

# Education

0	Virginia Tech, Blacksburg, Virginia, USA Computer Science Advisor: Dr. Scott McCrickard	Doctor of Philosophy 2013-2019
	Committee: Scott McCrickard, Edward A. Fox, Steve Harrison, Chris	North, Shahtab Wahid
0	Shandong University, Jinan, China Computer Science (one year of master's work)	Master of Engineering 2012–2013
0	Shandong University, Jinan, China Digital Media	Bachelor of Engineering 2008–2012

# Grants

Advisor: Dr. Li Liu

2021	Clark	\$20,000	Development, Implementation, and Evaluation of a Mobile App to Support
			New Student Orientation and Onboarding
2021	Clark	\$8,118	Integrating Design for Diversity (D4D) Concepts in Computer Science
			Curriculum, Clark University
2020	Clark	\$2,500	LEEP student project, Clark University
2019	Google	\$1,500	Google Cloud Platform Credits, Google Cloud Platform Education Grants
			program

# **Publications**<sup>1</sup>

### Peer-Reviewed Conference Papers

- C14 Shuo Niu, \*Katherine G. McKim, and Kathleen Palm Reed. Education, Personal Experiences, and Advocacy: Examining Drug-Addiction Videos on YouTube. Proceedings of the ACM on Human-Computer Interaction 5, no. CSCW2 (2022): 1-29. (to appear)
- C13 Shuo Niu, Hugh Manon, \*Ava Bartolome, \*Nguyen Binh Ha., \*Keegan Veazey. Close-up and Whispering: An Understanding of Multimodal and Parasocial Interactions in YouTube ASMR videos. In CHI '22: ACM CHI Conference on Human Factors in Computing Systems, April 30 - May 6, 2022, New Orlean. ACM, New York, NY, USA. (AR: 24.7%)
- C12 **Shuo Niu**, \*Cat Mai, \*Katherine G. McKim, and Scott McCrickard. "#TeamTrees: Investigating How YouTubers Participate in a Social Media Campaign." In *Proceedings of the ACM on Human-Computer Interaction 5*, no. CSCW2 (2021): 1-26. (**AR: 25.5%**)
- C11 Shuo Niu, \*Ava Bartolome, \*Cat Mai, \*Nguyen Binh Ha. 2021. #StayHome #WithMe: How Do YouTubers Create Videos for COVID-19 Loneliness? In CHI '21: ACM CHI Conference on Human Factors in Computing Systems, May 08–13, 2021, Online virtual. ACM, New York, NY, USA. (AR: 26.3%)
- C10 **Shuo Niu**, D. Scott McCrickard, \*Julia Nguyen, \*\*Derek Haqq, \*\*Lindah Kotut, \*\*Timothy L. Stelter, and Edward A. Fox. 2020. Investigating Paradigms of Group Territory in Multiple Display Environments. In *GROUP '20: ACM International Conference on Supporting Group Work (GROUP)*, January 06–08, 2020, Sanibel Island, FL. ACM, New York, NY, USA, 28 pages. (**AR: 32%**)
- C9 **Shuo Niu**, D. Scott McCrickard, and Steven Harrison. 2017. An Observational Study of Simultaneous and Sequential Interactions in Co-located Collaboration. In *Proceedings of the 16th IFIP TC 13 International Conference on Human-Computer Interaction (INTERACT '17)*. Springer, Mumbai, India, 163–183. (AR: 30.7%)
- C8 Shuo Niu, D. Scott McCrickard, and Steve Harrison. 2017. Investigating Notifications and Awareness for Multi-user Multi-touch Tabletop Displays. In *Proceedings of the 16th IFIP TC 13 International Conference on Human-Computer Interaction (INTERACT '17)*. Springer, Mumbai, India, 223–244. (AR: 30.7%)
- C7 Li Liu, Shuo Niu and D. Scott McCrickard, "Non-contact Human Computer Interaction System Design and Implementation," In *Proceedings of 2017 IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE '17)*, Philadelphia, PA, USA, 2017, pp. 312-320.

<sup>&</sup>lt;sup>1</sup>Note: In my field, papers published in the proceedings of selective conferences are rigorously peer-reviewed and highly competitive, therefore as equally (if not more) important than journal articles. Co-authors' degree of professional preparation is denoted as follows: \*undergraduate student, \*\*graduate student.

- C6 **Shuo Niu**, D. Scott McCrickard, and \*Sophia M. Nguyen. "Learning with Interactive Tabletop Displays." In *Proceedings of the Frontiers in Education Conference (FIE '16)*, pp. 1-9. IEEE, 2016.
- C5 \*\*Mohammed Seyam, D. Scott McCrickard and **Shuo Niu**, \*\*Andrey Esakia, and Woongsup Kim. "Teaching Mobile Application Development through Lectures, Interactive Tutorials, and Pair Programming." In *Proceedings of the Frontiers in Education Conference (FIE '16)*, pp. 1-9. IEEE, 2016.
- C4 D. Scott McCrickard, Troy D. Abel, Angela Scarpa, \*\*Yao Wang, and **Shuo Niu**. "Collaborative Design for Young Children with Autism: Design Tools and a User Study." In *Proceedings of 2015 International Conference on Collaboration Technologies and Systems (CTS '15)*, pp. 175-182. IEEE, 2015.
- C3 **Shuo Niu**, D. Scott McCrickard, and Steve Harrison. "Exploring Humanoid Factors of Robots through Transparent and Reflective Interactions." In *Proceedings of the 2015 International Conference on Collaboration Technologies and Systems (CTS '15)*, pp. 47-54. IEEE, 2015.
- C2 \*\*Andrey Esakia, Shuo Niu, and D. Scott McCrickard. "Augmenting Undergraduate Computer Science Education with Programmable Smartwatches." In *Proceedings of the 46th ACM Technical* Symposium on Computer Science Education (SIGCSE '15), pp. 66-71. ACM, 2015. (acceptance rate: 36%)
- C1 \*\*Xuan Zhang, **Shuo Niu**, \*\*Da Zhang, G. Alan Wang, and Weiguo Fan. "Predicting Vehicle Recalls with User-Generated Contents: A Text Mining Approach." In *Pacific-Asia Workshop on Intelligence and Security Informatics*, pp. 41-50. Springer International Publishing, 2015.

Journals

- J2 **Shuo Niu**, Li Liu, and D. Scott McCrickard. "Tongue-able interfaces: Prototyping and evaluating camera based tongue gesture input system." Smart Health 11 (2019): 16-28.
- J1 Shuo Niu, D. Scott McCrickard, \*\*Timothy L. Stelter, Alan Dix, and G. Don Taylor. 2019. "Reorganize Your Blogs: Supporting Blog Re-visitation with Natural Language Processing and Visualization." Multimodal Technologies and Interaction 3, no. 4 (2019): 66.

Short Papers and Posters

- S7 Shuo Niu, \*Keegan Veazey, \*Phoenix Pagan, and \*\*Abhisan Ghimire. 2022. Understanding Hate Ideology Videos on YouTube. In Companion Publication of the 2022 Conference on Computer Supported Cooperative Work and Social Computing (CSCW '22 Companion), November 8–22, 2022, Virtual Event, USA. ACM, New York, NY, USA, 5 pages. (to appear)
- S6 **Shuo Niu**, \*Jaime Garcia, \*Summayah Waseem, and Li Liu. 2022. Investigating How People with Disabilities Disclose Difficulties on YouTube. *In The 24th International ACM SIGACCESS Conference*

Shuo Niu

on Computers and Accessibility (ASSETS '22), October 23–26, 2022, Athens, Greece. ACM, New York, NY, USA, 6 pages. https://doi.org/10.1145/3517428.3550383 (to appear)

- S5 \*Ava Bartolome, \*Nguyen B. Ha, and Shuo Niu. 2021. Investigating Multimodal Interactions and Parasocial Attractiveness in YouTube ASMR Videos. In Companion Publication of the 2021 Conference on Computer Supported Cooperative Work and Social Computing (CSCW '21 Companion), October 23–27, 2021, Virtual Event, USA. ACM, New York, NY, USA, 5 pages. https://doi.org/10.1145/3462204.3481763
- S4 \*Katherine G. McKim, \*Cat Mai, \*Danielle Hess, and Shuo Niu. 2021. Investigating Drug Addiction Discourse on YouTube. In Companion Publication of the 2021 Conference on Computer Supported Cooperative Work and Social Computing (CSCW '21 Companion), October 23–27, 2021, Virtual Event, USA. ACM, New York, NY, USA, 5 pages. https://doi.org/10.1145/3462204.3481762
- S3 Shuo Niu, \*\*Andrey Esakia, and D. Scott McCrickard. "Exploring Computer Science Topics with Programmable Smartwatches." In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education (SIGCSE '15)*, Kansas City, MO. pp. 440-440. ACM, 2015.
- S2 Shuo Niu, Li Liu, and D. Scott McCrickard. "Tongue-able interfaces: evaluating techniques for a camera based tongue gesture input system." In *Proceedings of the 16th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '14)*, Rochester, NY. pp. 277-278. ACM, 2014.
- S1 Li Liu, **Shuo Niu**, \*Jingjing Ren, and Jingyuan Zhang. "Tongible: a non-contact tongue-based interaction technique." In *Proceedings of the 14th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '12)*, Boulder, CO. pp. 233-234. ACM, 2012.

Workshop Submissions

- W5 **Shuo Niu**. (2021). Friends, Mentors, or Family? Understanding YouTubers' Roles in Social and Emotional Wellbeing. Presented at the workshop of *Social Media as a Design and Research Site in HCI: Mapping Out Opportunities and Envisioning Future Uses.* CHI21.
- W4 **Shuo Niu**. (2021). Characterizing and Moderating Parasocial Interactions in YouTube Hate Videos. Presented at the workshop of *Addressing Challenges and Opportunities in Online Extremism Research: An Interdisciplinary Perspective*. CSCW21.
- W3 **Shuo Niu**, Scott McCrickard, Steve Harrison. (2018). Towards Connecting Experiences during Collocated Events through Data Mining and Visualization. Presented at the workshop of *Hybrid Events: Mediating Collocated Participation.* CSCW18.
- W2 Lindah Kotut, Mike Horning, Derek Haqq, **Shuo Niu**, Tim Stelter, Scott McCrickard. (2018). Towards Connecting Experiences during Collocated Events through Data Mining and Visualization. Presented at the workshop of *Rural Computing: Beyond Access and Infrastructure.* CSCW18.

#### Shuo Niu

W1 Shuo Niu, Alan Dix, Ellie Harmon, G. Don Taylor, Scott McCrickard. (2018). How Hiking Bloggers Explore Blogs with Interactive Text Visualization. Presented at the workshop of *Technology on the Trail.* GROUP18.

# Media Coverage

- "Listening to the Sensational World of ASMR with Professors Shuo Niu and Hugh Manon", Sep 9, 2022, Clark Challenge. Change. Podcast, https://open.spotify.com/episode/0dGjEyK8kBg7FDun3dgfRj?si=6e100316fb384c66&nd=1
- "Can the remedy for loneliness be found on YouTube?", Nov 18, 2021, ClarkNow, https://clarknow.clarku.edu/2021/11/18/can-the-remedy-for-loneliness-be-found-on-youtube/
- "CHCI Participation at CSCW 2021", Oct 6, 2021, Center for Human-Computer Interaction, https://hci.icat.vt.edu/research/chci-participation-at-cscw-2021.html
- "With the Swipe of a Tongue, CSUN Prof Makes Touchscreen Capabilities Accessible to Those Without Use of Their Arms", May 12, 2020, CSUN Today, https://csunshinetoday.csun.edu/education/with-the-swipe-of-a-tongue-csun-prof-makes-touchscreencapabilities-accessible-to-those-without-use-of-their-arms/
- o "Tongue-computer interfaces: A lifeline for those with upper body impairments", Oct 2018, Elsevier, https://www.journals.elsevier.com/smart-health/news/tongue-computer-interfaces

## **Talks and Presentations**

- o "Story Wars: Climate Change Communications", Panelist, Mar, 2022, Clark University
- "How YouTubers Participate in a Social Media Campaign: A Culture-Based Analysis of #TeamTrees", Oct, 2021, CSCW'21
- o "#StayHome #WithMe: How Do YouTubers Help with COVID-19 Loneliness?", May, 2021, CHI'21
- o "How Do YouTubers Help with COVID-19 Loneliness?" Feb, 2021, Clark University

## Awards

- o Advisor of VTURCS capstone project, third place people's choice award, 2016.
- o Advisor of VTURCS capstone project, first place people's choice award, 2015.
- Second prize scholarship for outstanding student in 2010-2011 (5 out of 34), 2,000 RMB, Shandong University, 11/2011
- o First prize, China Undergraduate Mathematical Contest in Modeling (Shandong contest area), 11/2010
- First prize scholarship for outstanding student in 2009-2010 (1 out of 34), 4,000 RMB Shandong University, 10/2010

#### Shuo Niu

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o National scholarship (1 out of 34), 8,000 RMB, Shandong University, 10/2010

# **Teaching Experience**

Clark University

# CSci244 Web Development

4 credit hours | new course developed

The course introduces foundational web-development concepts and skills for building modern full-stack applications. The goal is to let students experience front-end and back-end development by learning basic web programming languages, having hands-on tutorials, and building real-world applications. The course covers internet basics, HTML, CSS, JavaScript, React, RESTful API, NodeJS, and SQL/NoSQL database.

# **CSci245 Mobile Software and Development** *4 credit hours | new course developed*

The course focuses on 11 modules: Intro to mobile programming, mobile GUI, Activity and Fragment, navigation, architecture components, internet and database, cloud computing, background processing, sensors and location, media and animation, and touch and camera. Teach mobile development in 3 circular teaching steps - lecture, demo, and pair programming.

# DSci125 Intro to Data Science

4 credit hours | significant redesign

The course introduces foundational statistical and computational concepts and skills in data-centered computing and applications. The course covers data representations in Python, visualizing data, statistics and probability, data gathering and processing, intro to machine learning, regression, neural network basics, database and big data, and data ethics.

# CSci120 Introduction to Computing 4 credit hours

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The first course for computer science majors and anyone seeking a rigorous introduction. Develops computational problem-solving skills by programming in the Python language, and exposes students to a variety of other topics from computer science and its applications.

#### CSci126 Low-code Web Development 0

2 credit hours | new course developed

This course will introduce basic concepts in developing full-stack web applications using a low-code development environment. At the conclusion of this course, students will understand the fundamental concepts of low-code software engineering and how to apply them to web application design and implementation. This course will introduce web application concepts primarily using OutSystems, but students will be able to generalize these concepts to other web application technologies and tools.

# Virginia Tech

Mobile Software and Development 0 3 credit hours

Shuo Niu

# Sp 20, Fa 20

Fa 21, Sp22

## Winter 21

# Sp 21, Sp22

Fa 19. Fa 20. Fa22

The course focuses on 11 modules: intro to mobile programming, mobile GUI, Activity and Fragment, navigation, architecture components, internet and database, cloud computing, background Processing, Sensors and Location, Media and Animation, and Touch and Camera.

### Data Structures and Algorithms

### Summer 18

# ° 3 credits

Advanced data structures and analysis of data structure and algorithm performance. Sorting, searching, hashing, and advanced tree structures and algorithms. File system organization and access methods. Created course materials for lectures, assignments, demos, and exams. Utilized visualization tools and animations to explain key algorithms.

# **Student Advising**

Student Research Advising (Clark)								
2022-2023	Abhisan Ghimire (graduate student), Ava Bartolome, Kee- gan Veazey, Jonathan Hoff, Dilasha Shrestha, Phoenix Pagan, Aanandita Bali							
2021-2022	Ava Bartolome, Kathy McKim, Danielle Hess, Keegan Veazey, Jonathan Hoff, Dilasha Shrestha							
2020-2021	Ava Bartolome, Cat Mai, Nguyen Ha, Kathy McKim							
2019-2020	Bo Liu							
Undergraduate Research Advising (VT)								
Julia Nguyen	2018-2019	Sophia Nguyen	2016-2017					
Sushant Bhattarai	2016-2017	Kavin Aravind	2015-2017					
Usman Anwar	2015-2016							

# **Professional Leadership and Services**

Academic Chairing and Service.....

o CSCW'23 Meta Chair

o CHI'23 Late-Breaking Work Associate Chair, Workshop Juror

- o CHI'22 Late-Breaking Work Associate Chair
- o CSCW'22 Associate Chair
- o Group'22 Program Committee Member
- o CSCW'21 Session Chair
- o ICMI'20 Program Committee Member
- o ChineseCHI '19 Poster Co-chair

# **University and Department Service**

- o Research Board member Sp '21
- o Data science committee
- o CS faculty search committee '20
- o Student admission panel '20

# **Programming and Skills**

- o Programming Languages: JAVA, Python, C#, JavaScript, PHP, Kotlin
- o Programming Platforms: REACT, NodeJS, .NET, J2EE, JSP, Android
- o ML, Viz, and Tools: Apache Solr, Weka, StanfordNLP, MATLAB, D3, Processing