

John Chen

 CIVITAS-John |  Homepage |  civitas@u.northwestern.edu |  +1.872.202.2035

SUMMARY

As a human-computer interaction and learning researcher, I study how to leverage advanced technologies, such as Generative AI (GAI) or Augmented Reality, for playful informal learning at scale. I have led the research, design, and development of Physics Lab AR and Turtle Universe, App Store-featured playful learning software, reaching 7 million+ online, out-of-school learners worldwide. To understand the resulting large-scale human datasets, I have developed computational approaches with GAI to generate, measure, and evaluate inductive qualitative coding results. Over the past decade, I have learned from and worked with hundreds of learners across ages and backgrounds. I participated in seven and co-led five U.S. grant proposals to fund my research agenda.

PROFESSIONAL EXPERIENCE

Assistant Professor, University of Arizona Jan 2026 -

– Game Design and Development, College of Information Science

Lecturer, University of Arizona Aug 2025 - Dec 2025

– Game Design and Development, College of Information Science

Founder and CEO, CIVITAS LLC Aug 2014 - Aug 2019

– Founded CIVITAS LLC, an award-winning solution provider in educational technology, Augmented Reality (AR), and Virtual Reality (VR). Designed and implemented Dentistry, Criminology, and Physics projects for several Asian universities.

EDUCATION

2025 **Northwestern University** Evanston, IL

PhD in Computer Science and Learning Sciences

Dissertation title: Designing Constructionist Systems for Scaling, Supporting, and Analyzing Open-Ended Human Learning

Dissertation Advisor: Uri J. Wilensky

2024 **Northwestern University** Evanston, IL

Master of Science in Computer Science

2016 **Beijing Normal University** Beijing, CN

Bachelor of Arts in Chinese Language and Literature

PEER-REVIEWED PUBLICATIONS

Chen, J., Cheng, S., Gurkan, C., Lay, R., & Salahuddin, M. (2026). Vox Deorum: A Hybrid LLM Architecture for 4X/Grand Strategy Game AI-Lessons from Civilization V. *Accepted by IEEE Conference on Games (CoG)*.

Chen, J., Lotsos, A., Wang, G., Zhao, L., Hullman, J., Sherin, B., Wilensky, U. J., & Horn, M. S. (2026). A Computational Method for Measuring “Open Codes” in Qualitative Analysis. *Accepted by ACL Findings*.

Viano, S., Moya, H., Robinson, E., **Chen, J.**, & Conner, V. (2026). Reimagining credit recovery: Leadership and teaching for student engagement and support in asynchronous online learning. *Computers Education*, 253, 105694. <https://doi.org/https://doi.org/10.1016/j.compedu.2026.105694>

- Chen, J.**, Lotsos, A., Wang, G., Zhao, L., Sherin, B., Wilensky, U. J., & Horn, M. S. (2025). Processes Matter: How ML/GAI Approaches Could Support Open Qualitative Coding of Online Social Datasets. *Proceedings of ISLS Annual Meeting 2025*.
- Chen, J.**, Zhao, L., Horn, M. S., & Wilensky, U. J. (2025). Engaging Millions of Worldwide Youth in Informal STEM Learning: Uncovering Open-Ended Design Principles that Drive Physics Lab's Success. *Proceedings of the ACM Interaction Design and Children (IDC) 2025*.
- Chen, J.**, Lu, X., Du, Y., Rejtig, M., Bagley, R., Horn, M. S., & Wilensky, U. J. (2024). Learning Programming of Agent-based Modeling with LLM Companions: Experiences of Novices and Experts Using ChatGPT & NetLogo Chat. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*.
- Chen, J.**, Zhao, L., Li, Y., Xie, Z., Wilensky, U. J., & Horn, M. S. (2024). "Oh My God! It's Recreating Our Room!" Understanding Children's Experiences with A Room-Scale Augmented Reality Authoring Toolkit. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*.
- Chen, J.**, Horn, M. S., & Wilensky, U. J. (2023a). Interactive Constructionist Scaffolds for Agent-Based Modeling and Programming in NetLogo. *FabLearn / Constructionism 2023: Full and Short Research Papers*.
- Chen, J.**, Horn, M. S., & Wilensky, U. J. (2023b). Tortuga: Building Interactive Scaffolds for Agent-based Modeling and Programming in NetLogo. *Proceedings of ISLS Annual Meeting 2023*.
- Chen, J.**, Zhao, L., Horn, M. S., & Wilensky, U. J. (2023). The Pocketworld Playground: Engaging online, out-of-school learners with Agent-based Programming. *Proceedings of the ACM Interaction Design and Children (IDC) 2023*.
- Chen, J.**, Zhao, L., Xiao, F., Horn, M. S., & Wilensky, U. J. (2022). Self-Governed Collaborative Inquiry in Action: A Case Study of a Large-Scale Online Youth Community. *Proceedings of ISLS Annual Meeting 2022*.

MANUSCRIPTS IN PROCESS

- Chen, J., Cheng, S., Abdul Fattah, H. M., & Gurkan, C. (Under Review). To Nuke Or Not To Nuke: LLMs' (Missing) Ethical Reasoning and Actions in A High-Stakes Decision-Making Simulation.
- Chen, J., & **Wilensky, U. J.** (Under Review). When Code Meets Phones in Turtle Universe: The Exploration-Creation Gap in Informal Agent-based Programming. *International Journal of Child-Computer Interaction*.
- Zhao, L., **Chen, J.**, Li, Y., Xie, Z., & Horn, M. S. (Revise and Resubmit). "Can we just sit and relax?" Co-shaping the Process of Participatory Design with Children. *International Journal of Child-Computer Interaction*.
- Wilkinson, J. T., Kelter, J., **Chen, J.**, & Wilensky, U. (2024). A Network Simulation of OTC Markets with Multiple Agents. *arXiv preprint arXiv:2405.02480*.

PAPERS AND POSTERS PRESENTED

- Chen, J.** (2026). Would Artificial Leaders Launch the Nuke? Inclination of LLMs' Nuclear Weapon Usage in Civilization V. *International Conference on Computational Social Science*.

- Cheng, S., Zhao, L., **Chen, J.**, & Horn, M. S. (2026). Sketch, Predict, Reflect: Two Prototypes of an Interactive Child-Friendly AI Exhibit. *AERA Annual Meeting 2026*.
- Cao, L., **Chen, J.**, Scardamalia, M., & Chan, C. (2025). Advancing Community Knowledge towards the Cutting-edge: AI-powered Idea Constellation Map for Knowledge Building. *Knowledge Building Summer Institute 2025*.
- Chen, J.**, Lotsos, A., Zhao, L., Wang, G., Wilensky, U. J., Sherin, B., & Horn, M. S. (2025). Prompts Matter: Comparing ML/GAI Approaches for Generating Inductive Qualitative Coding Results. *AERA Annual Meeting 2025*.
- Fuhrmann, T., Rabinowitz, G., Peel, A., Jacob, S., Burke, Q., Krakowski, A., Greenwald, E., Gupta, P., Chaffee, R., Anderson, E., Peterson, K., Malyn-Smith, J., Perret, B., **Chen, J.**, Wilensky, U., Wendel, D., Han, A., Wagh, A., Blikstein, P., ... Lee, I. (2025). Computational thinking without writing code: What's next for computational modeling? *ISLS Annual Meeting 2025 (Symposium)*.
- Gurkan, C., Jwalapuram, N. K., Wang, K., Danda, R., Rasmussen, L., **Chen, J.**, & Wilensky, U. (2025). LEAR: LLM-Driven Evolution of Agent-Based Rules. *GECCO-2025 Workshop Papers*.
- Zhao, L., Li, Y., **Chen, J.**, & Horn, M. S. (2025). Balancing Facilitation and Exploration: Analyzing Visitor Interactions with a Medical Patient Simulator in a Science Museum. *AERA Annual Meeting 2025*.
- Chen, J.**, Horn, M. S., & Wilensky, U. J. (2023). NetLogo AR: Bringing Room-Scale Real-World Environments Into Computational Modeling for Children. *Proceedings of the ACM Interaction Design and Children (IDC) 2023*.
- Chen, J.**, & Wilensky, U. J. (2023a). ChatLogo: A Large Language Model-Driven Hybrid Natural-Programming Language Interface for Agent-Based Modeling and Programming. *Proceedings of FabLearn/Constructionism 2023*.
- Chen, J.**, & Wilensky, U. J. (2023b). Measuring Young Learners' Open-ended Agent-based Programming Practices with Learning Analytics. *AERA Annual Meeting 2023*.
- Li, Y., & **Chen, J.** (2023). Creative Expression through Color and Sound: A NetLogo Model for the Sonification of Color and the Visualization of Sound. *Proceedings of FabLearn/Constructionism 2023*.
- Mongkhonvanit, K., Hummer, T. M., & **Chen, J.** (2023). Velo: Exploring Animal Behavior Modeling through Hybrid Robotics-Simulation Learning Experience. *Proceedings of the ACM Interaction Design and Children (IDC) 2023*.
- Chen, J.**, & Wilensky, U. J. (2021). NetLogo Mobile: Introduction to A New Incarnation of NetLogo with embedded tools for Designing Interactive Scaffolds. *Presented at ISLS Annual Meeting 2021*.
- Chen, J.**, & Wilensky, U. (2020). NetLogo Mobile: An Agent-Based Modeling Platform and Community for Learners, Teachers, and Researchers. *Proceedings of International Conference of the Learning Sciences 2020*.

MAJOR PROJECTS

Vox Deorum: Human-AI Teaming in Strategic Simulations (2025-)

Project Lead, PI

- Led the project’s technical and research team with 8 high-school, master’s, and PhD students.
- Developed novel hybrid architecture for integrating Generative AI in strategic simulations (e.g., Civilization V).
- Identified ethical reasoning pathways in AI agents’ emergent nuclear weapon escalation decisions.
- As PI, acquired support from Explore ACCESS (\$8,000), Google (\$5,000), and Lambda Cloud (\$2,000).

Human-AI Collaboration in Inductive Qualitative Analysis (2024-)

Project Lead, Co-PI

- Led the project’s technical and research team with 4 undergraduate and graduate students.
- Proposed and developed novel computational approaches to generate and evaluate inductive coding results (accepted by AERA 2025, CSCS 2025, waiting for commitment for ACL 2025).
- As Co-PI, wrote an NSF Future:CoRe (IIS HCC) grant proposal (\$900,000) to co-design interfaces for human-AI collaborative qualitative analysis with Dr. Uri Wilensky & Michael Horn. 1st attempt: **Competitive**. 2nd attempt: **Awarded**.

Cultivating Modeling Literacy and Practice through a NetLogo OSE (2023-)

NSF

Core Team Member, Proposal Co-writer

- Co-wrote the funded grant proposal (NSF’s Pathways to Enable Open-Source Ecosystems, \$1,449,990) with Dr. Uri Wilensky and Michael Horn.
- Participated in a 4-week NSF training and interviewed global stakeholders in academia and industry.
- Designed and cultivated [NetLogo’s official online forum](#) to encourage open-source contributions.

NetLogo Chat (ChatLogo, 2023-)

Project Lead, PI

- Led the project’s technical and research team with 5 undergraduate and graduate students to design the first Generative AI-based interface for (learning of) scientific modeling.
- Conducted a global interview study with 30 academics, professionals, and graduate students to understand their perceptions, behaviors, and needs (CHI 2024).
- As PI, wrote an AWS Agent AI grant proposal (\$120,000) to develop technical infrastructure for human-AI co-creation of agent-based models.
- As Co-PI, wrote an NSF RITEL grant proposal (\$900,000) to co-design a new iteration of NetLogo Chat for a high-school learning audience with Dr. Uri Wilensky.

Enhancing Infrastructure for Model-Based Inquiry in Learning (2022-2024)

NU-SESP

Project Lead, Proposal Co-writer

- Co-wrote the funded grant proposal (Northwestern University School of Education and Social Policy (SESP)’s Venture Research Fund, \$49,600) with Dr. Uri Wilensky.
- Recruited and supervised the project’s team with 6 undergraduate and graduate students to design and develop authoring features for NetLogo Web.

NetLogo AR (2023-)

[Link to Project](#)

Project Lead

- Led a technical and research team with 4 undergraduate and graduate students to design the first room-scale AR authoring system integrated with computational thinking ideas.
- Facilitated an 8-week after-school co-design activity with a diverse cohort of elementary school students.
- Conducted video analysis to reveal children’s spatial thinking engagement and provided design suggestions (CHI 2024).

Turtle Universe (NetLogo Mobile, 2019-)

[Link to Product](#)

Founder, Project Lead

- The mobile-first incarnation of NetLogo to promote complex systems and computational thinking.
- At Northwestern, led a technical and research team with 16 undergraduate and graduate students for its design, development, and research.
- Engaged 104,539 worldwide users (mostly online, informal learners, as of Aug 2024) in constructing and sharing playful programming projects and scientific modeling projects.
- Conducted design-based mixed methods research to understand the design of interactive scaffolds for informal, online learners (AERA 2022, IDC 2023, Constructionism 2023, ISLS 2023).

Physics Lab AR (2017-)

[Link to Product](#)

Founder, Project Lead

- A playful mobile learning app for creating and sharing physics simulations.
- Repeatedly featured by Apple's App Store in Canada, Cambodia, China Mainland, Indonesia, Macao, Malaysia, Philippines, Singapore, Thailand, and Vietnam.
- Engaged 6,995,217 worldwide users (mostly online, informal learners, as of Aug 2024) with constructing or sharing physics simulations.
- At Northwestern, led a technical and research team for its design, development, and research.
- Conducted mixed methods research to understand its success and large-scale online community, examining millions of log data, shared artifacts, and conversations (ISLS 2022; IDC 2025).

CIVITAS (2013-2017)

Founder, Project Lead

- Led the massive online social simulation's game design and development.
- Engaged around 60,000 youth and young adults in China.

PROFESSIONAL SERVICES

Grant Proposal Panelist

National Science Foundation (2023, 2024, 2025, 2026x2)

Conference Organizer

ACM Interaction Design and Children (2023)

Virtual Conference Co-chair

Associate Chair

ACM Conference on Human Factors in Computing Systems (2026)

Associate Chair

Reviewer / Program Committee Member

ACM Interaction Design and Children (2022-2024)

Reviewer

ACM Conference on Human Factors in Computing Systems (2026)

Associate Chair

ACM Conference on Human Factors in Computing Systems (2022-2026)

Reviewer (Special Recognition)

ACM Computer-Supported Collaborative Work (2022-2025)

Reviewer (Special Recognition)

AERA Annual Meeting (2021-2025)

Reviewer, Session Chair

Constructionism Conference (2023)

Program Committee Member

ISLS Annual Meeting (2021-2026)

Program Committee Member

IEEE Transactions on Learning Technologies (2024)

Reviewer

International Journal of Child-Computer Interaction (2025)

Reviewer

Educational Mining (2025)

Reviewer

ACM Transactions on Computing for Healthcare (2025)

Reviewer

Computer & Education (2026)

Reviewer

International Conference on Computational Social Science (2026)

Reviewer

Workshop Contributor

NSF CAMEL - Shaping the Future of Mathematics

Contributor

Learning and Education: A Scoping Workshop

AWARDS AND ACTIVITIES

NSF Future CoRe IIS HCC, Co-PI (\$899,998; Subaward share \$449,748)

2026-2029

Explore ACCESS Allocation (400,000 Credits = \$8,000)

2025-2026

Lambda Research Grant (\$2,000)

2026

Google Cloud Research Credits (\$5,000)

2026

Dissertation Fellowship, Northwestern University

2024-2025

University Fellowship, Northwestern University

2019-2020

INVITED TALKS AND PRESENTATIONS

Chen, J. (January, 2026). Designing Constructionist Systems For Open-Ended Human Learning. *Invited Talk at the Cognitive Science Colloquium, the University of Arizona.*

Chen, J. (February, 2025). Designing Open-Ended Human-AI Systems For Open-Ended Human Learning. *Invited Talk at the Department of Computer Science at the University of Texas, Arlington.*

Chen, J. (March, 2025-a). Designing Open-Ended Human-AI Systems For Open-Ended Human Learning. *Invited Talk at the Department of Informatics at Indiana University, Bloomington.*

Chen, J. (March, 2025-b). Designing Open-Ended Human-AI Systems For Open-Ended Human Learning. *Invited Talk at the Department of Human-Centered Computing at Indiana University, Indianapolis.*

- Chen, J.** (March, 2025-c). Designing Open-Ended Playful Environments For Open-Ended Human Learning. *Invited Talk at the College of Information Science, the University of Arizona.*
- Chen, J.** (November, 2024). Making Agent-based Computational Models with Generative AI: Opportunities and Challenges. *Invited Talk at Making Sense of Models: Decoding and Beyond, Santa Fe, New Mexico.*
- Chen, J.** (June, 2026). What Should We Teach When AI Gets the Driver Seat. *Ignite Talk at Annual Meeting of International Society of Learning Sciences.*
- Chen, J.** (July, 2026). Workshop: Using AI to Help Modify and Create Models. *NetLogo Conference 2026.*
- Chen, J., Zhao, L., & Lostos, A.** (June, 2024). When LLMs Meet the Grounded Theory: Generate and Evaluate Open-Ended Qualitative Codes through Human-AI Collaboration. *Presented at Human-Computer Interaction Consortium 2024.*

TEACHING EXPERIENCE

Instructor @ University of Arizona Spring 2026

INFOSCI 696: HARE: Human-AI Interaction Research Experience

- Co-designed an in-person seminar for master's and PhD students
- Built the syllabus from the ground up with student participation
- Invited and hosted guest speakers
- Supported and supervised students' research projects in HAI

Instructor @ University of Arizona Fall 2025

INFOSCI 523 (2 Sections): Data Mining and Discovery

- Facilitated an online, asynchronous class for master and PhD students
- Designed a special session on human-AI collaboration in data mining and discovery.
- Improved existing curriculum and website.
- Supervised students' individual final projects on data mining and discovery.

Teaching Assistant @ Northwestern University Spring 2022

Teaching Assistant @ Northwestern University Spring 2024

Guest Lecturer @ Northwestern University Spring 2025

CS372/472/LS451: Designing & Constructing Models With Multi-Agent Languages

- Co-developed syllabus, curriculum, assignments, and course sequences with Dr. Uri Wilensky.
- Taught dozens of technical, feedback, and QA sections throughout the class.
- Served as a substitute instructor, holding lectures and project workshops with students.
- Graded and supervised students' weekly and final projects.
- Co-authored a paper with an undergraduate student.

Teaching Assistant @ Northwestern University Winter 2023

LS426/CS496: The Design of Technological Tools for Thinking and Learning

- Co-developed syllabus, curriculum, assignments, and course sequences with Dr. Uri Wilensky.
- Taught technical, feedback, and QA sections throughout the class.
- Graded and supervised students' weekly and final projects
- Co-authored two presentations (IDC 2023) with three graduate students.

Guest Lecturer @ Northwestern University

Spring 2025

School of Education and Social Policy, LS416/HDSP435: Advanced Qualitative Methods

- Designed five-week learning activities with Dr. Jim Spillane and Alex Lotsos (Northwestern University) for a Ph. D.-level research methodology course.
- Facilitated the learning-by-doing experience and deep discussions around human-AI collaboration in qualitative analysis.

Guest Lecturer @ Northwestern University

Winter 2025

Segal Design Institute, DSGN395: Designing with AI

- Designed learning activities with Dr. Elizabeth Gerber (Northwestern University).
- Facilitated the learning-by-doing experience around human-AI collaboration in qualitative analysis.

Guest Lecturer @ Art of Inquiry

Winter 2023

Introduction to Agent-based Modeling for Ukrainian Children

- Worked with organizers and young volunteers to co-design the online sessions.
- Designed and adapted the learning experience for children in the war zone or as refugees.

SUPERVISED STUDENTS AND INTERNS

Charles Cheng	Undergrad @ Northwestern University - Curricular Designer (2020-2021)
Siqi Chen	Master Student @ Northwestern University - Designer (2020)
Sixuan Li	Master Student @ University of Washington - Designer (2020)
Shimei Qiu	Master Student @ Northwestern University - Designer (2020-2021)
Zixuan Gu	Master Student @ Northwestern University - Designer (2020)
Xuan Zhang	Master Student @ Northwestern University - Developer (2020)
Chelsea Guzman	Undergrad @ Northwestern University - Translator (2021-2022)
Cassandra Lagunas	Undergrad @ Northwestern University - Translator (2021)
Feiwen Xiao	Master Student @ University of Pennsylvania - Research Assistant (2021-2022)
Hanwen Zhang	Undergrad @ Middlebury College - Research Assistant (2021-2022)
David Du	Master Student @ Northwestern University - Designer (2023-2024)
Sherry Xu	Master Student @ Northwestern University - Designer (2024)
Seungyeon Kim	Master Student @ Northwestern University - Designer (2024-2025)
Ruth Bagley	Master Student @ Northwestern University - Developer & RA (2023-2024)
Haylie Wu	Undergrad @ Northwestern University - Developer (2023)
Acero Liang Li	Undergrad @ SUNY Buffalo - Developer (2023-2024)
Ethan Ji	Undergrad @ University of Wisconsin Madison - Developer (2023-2024)
Eugenia Cao	Undergrad @ Northwestern University - Research Assistant (2023)
Janet Xie	Undergrad @ Northwestern University - Research Assistant (2023)
Andre Chen	Undergrad @ Northwestern University - Developer (2023-2024)
Gerardo Perez	Undergrad @ Northwestern University - Developer (2024)
Frank Zhang	Undergrad @ Northwestern University - Developer (2025)
Sihan Cheng	Undergrad @ Northwestern University - Research Assistant (2025-)
Jacob Liang	Undergrad @ Northwestern University - Developer & RA (2025)
Ryan Lay	Master Student @ University of Wisconsin-Madison & RA (2025)
Nathan Batty	Master Student @ University of Wisconsin-Madison & RA (2025)
H M Abdul Fattah	PhD Student @ University of Arizona - Dissertation Co-Chair (2026-)

SOFTWARE AND MODELS

Chen, J. (2025). *Vox Deorum: LLM-enhanced AI system for Civilization V upon the Community Patch + Vox Populi*. <https://github.com/CIVITAS-John/vox-deorum>

Chen, J., Yanjia, Z., & Sihan, C. (2025). *CHAIR: A Library for Collaborative Human-AI Inductive Research*. <https://github.com/CIVITAS-John/CHAIR>

Chen, J., & Wilensky, U. (2023a). *NetLogo AR: Combining NetLogo with Room-scale Augmented Reality*. <https://github.com/NetLogo-Mobile/NetLogo-AR/>

Chen, J., & Wilensky, U. (2023b). *NetLogo Chat: An LLM-based Modeling Assistant of NetLogo*. <https://github.com/NetLogo-Mobile/TU-Editor/>

Chen, J., & Wilensky, U. (2021a). *NetLogo Model: Limited Order Book*. <https://ccl.northwestern.edu/netlogo/models/LimitedOrderBook>

Chen, J., & Wilensky, U. (2021b). *NetLogo Model: The Pocketworld Playground*. <https://www.turtlesim.com/products/turtle-universe/>

Chen, J., & Wilensky, U. (2021c). *NetLogo Model: Virus in a Community*. <https://www.turtlesim.com/products/turtle-universe/>

Chen, J., & Wilensky, U. (2021d). *Tortuga: Building Interactive Scaffolds for NetLogo*. <https://github.com/NetLogo-Mobile/Tutorial-Editor/>

Chen, J., & Wilensky, U. (2021e). *Turtle Universe*. <https://www.turtlesim.com/products/turtle-universe/>

Chen, J., & Zhao, L. (2017). *Physics Lab*. <https://www.turtlesim.com/products/physics-lab/>

SKILLS

Programming Languages	C++, C#, Coffeescript, CSS, HTML, Kotlin, Java, Javascript, NetLogo, Objective-C, Python, Ruby, Typescript, Shellscript, VB.net, Swift, SQL
Other Technical Skills	Full-Stack Development, Product Management, Online Community Design, Data Visualization, UI/UX, AR/VR (Headsets/Handhelds), Prompt Engineering, LLM-driven Systems
Quantitative Toolkits	STATA, R, Tableau, & many Python and Javascript packages
Quantitative Methodologies	Cluster Analysis, Regression Analysis, Network Analysis, Survival Analysis, Time Series Analysis, Agent-based Modeling
Qualitative Methodologies	Clinical Interview, (Quantitative/Online) Ethnography, Grounded Theory Analysis, Thematic Analysis, Video Analysis

PROFESSIONAL AFFILIATIONS

Association for Computing Machinery (2023-)	Membership
ACM SIGCHI (2024-)	Membership
American Educational Research Association (2021-)	Membership
International Society of Learning Sciences (2021-)	Membership