Hanyi Xu

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My research examines how interactive media shape users' stress, motivation, and well-being. I study when enjoyable experiences become demanding and how design can support both engagement and restoration. My master's thesis applies the Interactivity-as-Demand framework and builds skills in experimental design, computational modeling, and large-scale text analysis. I aim to expand this work in my doctoral studies.

Education

Columbia University, New York, NY — Aug 2024 – Dec 2025
M.A. in Quantitative Methods in the Social Sciences

- **GPA:** 3.92/4.00
- **Thesis:** "Why Games Stop Feeling Fun: A Computational Approach to Emotional Demand in Play" [DOI: 10.7916/3mm4-3482]; Advisor: Dr. Gregory Kossinets
- **Coursework:** Machine Learning in Social Science, Data Analysis, Data Visualization, Quantitative Research Theory

Syracuse University, Syracuse, NY — Aug 2020 – May 2024
B.S. in Advertising

- **GPA:** 3.45/4.00 (Cum Laude)
- **Coursework:** Media Planning, Digital Social Media, Communications Theory, Advertising Capstone

Research Experience

Research Assistant, Language and Cognitive Neuroscience Lab — May 2025 – Present
Columbia University – New York, NY

- Principal Investigator: Dr. Peter Gordon
- Used Python and MNE to automate sLORETA EEG analysis for 24 subjects across 30 conditions, enabling real-time 3D brain visualization and temporal peak detection.
- Built a configurable pipeline supporting multiple cognitive tasks (e.g., direction, size, cardinality).
- Participated in EEG and eye-tracking equipment training and operation
- Engaged in a journal reading group to exchange ideas and stay current with research developments

Research Assistant, Cognitive Media Lab — October 2024 – Present
UCSD/Columbia University – New York, NY

- Principal Investigator: Dr. Michael Haupt
- Contributed to survey design and implementation, including programming and data collection
- Conducted statistical analyses using Python and SPSS, including multiple regression models and group comparisons
- Analyzed relationships between race, income, education, age, and geography in relation to barriers to birth control and abortion access
- Authored and revised the analysis section of a manuscript prepared for publication

Research Assistant, Meaningful Math Research Group April 2023 – May 2024
Syracuse University – Syracuse, NY

- Principal Investigator: Dr. Nicole Fonger
- Investigated the impact of social justice themes on critical thinking, identity, and academic engagement in undergraduate precalculus students
- Employed mixed methods, including interviews and surveys, with data from 58 students at a predominantly white institution
- Assisted The Data Warriors, a youth-focused community research program, by helping organize events and supporting students during activities.
- Conducted thematic analysis, contributed to academic manuscripts, and presented findings at conferences including the SOURCE Fall Research Expo, the D.E.I.A. Symposium, the 18th ACC Meeting of Minds, and PME-NA 2024.

Research Assistant, The Sharpe Lab February 2022 – May 2022
Syracuse University – Syracuse, NY

- Principal Investigator: Dr. Charlotte Sharpe
- Trained in qualitative research methods and ethics for studying high school students' attitudes toward teaching
- Conducted on-site interviews and facilitated focus groups at a local high school
- Collaboratively analyzed qualitative data and identified key themes
- Contributed to research discussions and final analysis synthesis

Manuscript

[1] ***Xu, H.*** (2025, December). Demand overload: How game mechanics trigger stress and reduce enjoyment. Poster submitted for presentation at the 2026 APS Annual Convention, Barcelona, Spain.

[2] Rhee, V., Chen, Z., Gushiken, Y., Bakhru, K., ***Xu, H.***, Bisbee, N., Li, Y., Tang, J. E., & Gordon, P. (2025, September). Electrophysiological and behavioral indices of numerical perception and cognition. Poster submitted for presentation at the 2026 Annual Meeting of the Cognitive Neuroscience Society, Vancouver, Canada.

[3] ***Xu, H.***, Raja, W., Boutros, E., Wu, Q., & Fonger, N. L. (2024, November). *Emotions in social justice mathematics: Students' experience from a college precalculus classroom*. Paper presented at the 46th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Cleveland, OH.

[4] Boutros, E., Wu, Q., ***Xu, H.***, & Fonger, N. L. (2023, August). *Making mathematics meaningful: How learning about local social injustices develops undergraduate students' identity, intellect, skill, and criticality*. *The Crown: Syracuse Undergraduate Research Journal*, *1*, Article 16.

Presentation

[1] ***Xu, H.*** (2024, April). *Making mathematics meaningful: A mixed-methods study of undergraduate students' learning through social justice*. Paper presented at the 18th Annual ACC Meeting of the Minds Conference, South Bend, IN.

[2] Boutros, E., Fonger, N. L., Wu, Q., ***Xu, H.*** (2023, December). *Making mathematics meaningful: How learning about local social injustices develops undergraduate students' identity, intellect, skill, and criticality*. Paper presented at the SOURCE Fall Research Expo, Syracuse University.

[3] Boutros, E., Fonger, N. L., Wu, Q., ***Xu, H.*** (2023, October). *Enhancing students' inclusion and belonging by developing meaningful mathematics literacy in the place we now call home*. Paper

presented at the D.E.I.A. Symposium, Syracuse University.

[4] Boutros, E., Fonger, N. L., Wu, Q., ***Xu, H.*** (2023, August). *Making mathematics meaningful: How learning about local injustices develops undergraduate students' criticality, identities, intellect, skill, and emotion*. Poster session presented at the SOURCE Symposium, Syracuse University.

Teaching Assistantship

Natural Language Processing Social Sciences, Columbia University (QMSS GR5067): Spring 2025, Summer 2025, Fall 2025
First Year Seminar, Syracuse University (FYS 101): Fall 2022, Fall 2023
AEW for Calculus II, Syracuse University (ECS 116): Fall 2021

Professional Experience

Account Executive Intern, BlueFocus – Shanghai, China June 2024 – August 2024

- Supported the Sony Camera Line Promotion Campaign by assisting the Project Manager in implementing plans, coordinating workflows, and managing timelines across RED (Xiaohongshu) and Bilibili platforms
- Facilitated internal communication by summarizing and relaying client feedback, accelerating article production, and monitoring campaign traffic
- Analyzed July market share performance of Sony's new release using Power BI to inform strategic adjustments
- Handled internal project procedures, including initiation, finalization, and contract documentation

Marketing and Media Intern, Boathouse Group Inc – Waltham, MA June 2023 – August 2023

- Led media optimization analysis within a five-person team for the Story District Promotion Campaign
- Collected and analyzed data from social media platforms, websites, and competitor reports to assess campaign effectiveness
- Developed a comprehensive content calendar and designed performance KPIs
- Produced a media plan selected by the client over competing proposals
- Delivered data-driven recommendations to enhance public relations strategy and fostered collaboration through Hub project management tools

Associate Producer, Orange Television Network – Syracuse, NY March 2023 – May 2024

- Served as Associate Producer and Director of Photography for the TV program *Psych vs. Star*, responsible for visual storytelling design, crew training, on-set direction, and post-production editing.
- Oversaw post-production and quality control, including title sequence design, visual packaging review, and final cut supervision; developed and managed overall production schedules.
- Participated in the filming of *Loud and Clear* as a one-person crew, handling both camera operation and production logistics.

Project

Cloudburst Prediction Model (A class project with Alt Surya) October 2024 – Present
New York, NY

- Collaborated with a multidisciplinary team to develop a prototype predictive software system aimed at providing early warnings for cloudbursts in urban areas, enhancing disaster preparedness for residents and businesses.
- Utilized Python to analyze diverse datasets, including satellite imagery, weather sensor readings, and historical rainfall records, to identify patterns indicative of imminent cloudburst events.

- Implemented ensemble machine learning models, such as Random Forest and Gradient Boosting Decision Trees, to predict the frequency and intensity of cloudbursts within a 6-hour window.
- Employed Python visualization packages (Plotly, Plotnine/GGPlot2) to create interactive visualizations, communicating complex meteorological data and model predictions to stakeholders.
- Coordinated project timelines and deliverables using GitHub, ensuring seamless collaboration among team members.

Undergraduate Capstone Project: CARE Advertising Campaign January 2024 – May 2024
Syracuse University – Syracuse, NY

- Collaborated as a media planner on a comprehensive advertising campaign for the French charity brand CARE.
- Conducted in-depth communication with CARE employees to analyze the brand's current market position, competitors, and industry trends, providing a solid data foundation for strategic planning.
- Utilized the Nielsen Commspoint database and market analysis tools to design an 8-week media placement plan and corresponding KPIs for CARE.
- Used Photoshop to redesign CARE's social media strategy and create multiple post templates.
- Drafted the final creative proposal and brand strategy, presented to the client, and oversaw the full process of campaign planning, production, execution, and evaluation to ensure project efficiency and success.

Technologies

Programming & Data Tools: Python, R, HTML, GitHub, MAXQDA
Marketing & Analytics Platforms: GWI, MRI Simmons, Nielsen Commspoint
Productivity & Office Tools: Microsoft Excel (certified in 2022), PowerPoint, Word; Apple Pages, Numbers, and Keynote; Google Workspace; Miro
Design & Media Tools: Adobe Photoshop, Premiere Pro, Canva
Computer Systems: Experienced user of Macintosh and Windows operating systems, with working knowledge of Linux and command-line interface (CLI) operations

Licenses & Certifications

Human Subjects Protection SBR, CITI Program Aug 2025 – Aug 2028
Credential ID: 71361914

FDA-Regulated Research, CITI Program Aug 2025
Credential ID: 71361915

Research With Minors SBR, CITI Program Aug 2025
Credential ID: 71361916

Microsoft Office Specialist: Excel 2019 Associate, Microsoft Nov 2022
Credential ID: n28K-Dwo5

Language

Chinese (Mandarin): Native
English: Fluent

Last updated in January 2026