

Joey (Chu-Jen) Huang

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A learning scientist by training with 8+ years of research experience and expertise in AI/ML, STEM learning, and educational technology designs and applications. Aiming to apply **design-based research, mixed methods, learning and instructional theories** and leverage my experience to conduct research on learning within engineering and partnership activities that bring communities together for educators, users, and designers.

EDUCATION

Ph.D. in Learning and Developmental Sciences, minor in Inquiry Methodology | 2020

School of Education, Indiana University Bloomington

Dissertation: *Studying Computational Thinking Through Collaborative Design Activities with Scratch for Middle School Students*

M.A. in Educational Psychology | 2012

The College of Education, The University of Texas at Austin

Thesis: *Facebook Use in College Students: Facing the Learning Motivation of Young Adults*

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher, School of Information & Computer Sciences, University of California (UC) Irvine | 2020 – present

- Lead cross-functional teams on two NSF-funded projects (over \$5 million): 1. Skill-LeARn: Design a platform to create and share AR content for skilling, 2. Future of Work at the Human-Technology Frontier: Develop a physical-reality simulation platform and AI modules to connect human agents with robots and machines
- Utilize mixed methods (collected and analyzed 100+ interviews) to investigate and evaluate AI, AR, and VR designs for stakeholders in industry and education
- Design curriculum and open educational resources on IoT, AI, and engineering designs for underrepresented youth
- Co-design an AR platform for pre-skilling and scaling the future manufacturing workforces by collaborating with over 20 education and industry partners

Lead Graduate Researcher, School of Education, Indiana University Bloomington | 2017 – 2019

- Led a research team to conduct an interdisciplinary project — Learning-Objective Based Design and Assessment for the Online Manufacturing Certificate Program, which leads to a ML evaluation beta system for online learning
- Applied mixed methods to examine 930 professional engineers' learning outcomes and trajectories with learning analytics and visualization techniques to find meaningful behavioral patterns and improve learning outcomes
- Co-designed online course content and learning objectives with MIT and Boeing Company on additive manufacturing and leaderships (the courses were successfully launched on MITxPRO in 2018, over 1,600 people have registered by 2021)

Graduate Research Assistant, School of Education, Indiana University Bloomington | 2015 – 2017

- Co-developed telepresence robot and programmed its function with a research team in Informatics at IU
- Managed workshops to teach students programming and concepts of robotics and engineering design
- Organized 10+ professional development workshops for K-12 teachers to incorporate robotics into the STEM curriculum

Lead Graduate Researcher, School of Education, Indiana University Bloomington | 2014 – 2017

- Analyzed 30+ hours of videos, interviews, and surveys to examine collaborative learning for citizen scientists
- Developed analytical and computational tools with R program to visualize the coding results of video data
- Led and published research papers on refereed conference proceedings (ICLS, CSCS) and a high-impact journal (CHB)

SKILLS

Statistical Methods: Multiple regression, Multivariate Analysis, ANOVA, Covariate Analysis, Correlation Analysis

Statistical Packages: R/R studio, SPSS, Mplus, SAS

Qualitative Analysis Softwares: MAXQDA, NVivo, ATLAS.ti, Dedoose, InqScribe

Qualitative Research: Interview, Focus Group, Observation, Ethnographic Studies

Social Network Analysis & Visualization: Gephi, UCINET, R

Programming: Python, HTML

Certificates: Additive Manufacturing for Innovative Design and Production, Teaching Chinese as a Foreign Language

RESEARCH GRANTS AWARDED

Convergence Accelerator Phase II Research Grant, National Science Foundation (NSF) (\$5 million) | 2020

The Office of the Vice Provost for Research Award for Research Method Collaboration, Center for Survey Research, Indiana University (\$5000) | 2018

Ph.D. Research Grant, Ministry of Education, Taiwan (\$32,000) | 2014

Proffitt Fellowship, Indiana University Bloomington (\$42,000) | 2013

SELECTED PUBLICATIONS (REFEREED ARTICLES)

- **Huang, J.**, Parker, M. (2022). Developing computational thinking collaboratively: The nexus of computational practices within small groups. *Journal of Computer Science Education*. <https://doi.org/10.1080/08993408.2022.2039488>
- Börner, K., Ginda, M., **Huang, J.**, Peppler, K., Richey, R. (in prep.) Let's learn together: Human-machine collaboration and learning. *Science: Education Forum*.
- Villanueva, A., Liu, Z., Zhu, Z., Du, X., **Huang, J.**, Peppler, K., Ramani, K. (2021). RobotAR: An augmented reality compatible teleconsulting robotics toolkit for augmented makerspaces experiences. *The ACM CHI Conference on Human Factors in Computing Systems*.
- Peppler, K., **Huang, J.**, Richey, C. M. et al. (2020). Key principles for workforce upskilling via online learning: A learning analytics study of a professional course in additive manufacturing. <https://arxiv.org/abs/2008.06610>
- **Huang, J.** (2020). Exploring computational thinking practices through collaborative design activities. *Exploring, Testing and Extending our Understanding of Constructionism*.
- **Huang, J.** & Peppler, K. (2019). Studying computational thinking through collaborative design activities with Scratch. *A wide lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings: International Conference on Computer Supported Collaborative Learning (CSCL)*.

INVITED TALKS, PRESENTATIONS, & WORKSHOPS

Designing and Developing a Mixed Reality (XR) Platform for Learning and Workforce Training, UC Irvine | January, 2021

Ed Tech: Measuring Computational thinking Practices for 21st Century Literacies undergraduate-level course, School of Education, UC Irvine | February, 2020

Data Visualization in Education graduate-level course, Program of Learning Design and Technology, North Carolina State University, | November, 2019

Introduction to Informatics (honors course), School of Informatics, Indiana University Bloomington | October, 2018

Management Information Systems undergraduate-level course, School of Business, Indiana University Bloomington | Spring & Fall 2017-2018; Spring 2019

3D Printing and Design for Graduate Women in Technology (GWiT) | October, 2017

SELECTED TEACHING EXPERIENCE

New Course Designed for Graduate Students | 2020

Arts, Making, and Engineering, School of Education, Department of Informatics, UC Irvine

- Designed and structured the course agenda, readings, and assignments regarding the construct of arts, making, & engineering
- Developed and led lab and classroom activities on IoT kits, e-textile, paper and tangible circuits

Undergraduate Classes (Teaching Evaluation Scores: 4.32/4.5 points) | 2016-2018

Educational Psychology of Elementary School Majors (Online & Face-to-Face), Department of Counseling and Educational Psychology, Indiana University Bloomington

- Designed online and face-to-face curriculums, modules, and assessments via Canvas to teach pre-service teachers educational psychology and learning theories
- Scaffolded students to apply learning theories and educational psychology constructs in teaching

Over 50 3D Printing & Design Workshops | 2015-2019

Center of Excellence for Women and Technology (CEW&T), Indiana University Bloomington

- Led a team to design and develop additive manufacturing training modules and workshop programs
- Taught 50+ additive manufacturing workshops to faculty, student, and staff at Indiana University and youth in K-12 after-school programs

SELECTED SERVICE/LEADERSHIP

Conference Committee and Representative of ILSSA: International Society of the Learning Sciences (ISLS) Annual Meeting 2021 (2020 – present)

Founding Officer (Membership & Outreach): International Learning Sciences Student Association (ILSSA) (2019 – present)

Conference Host & Committee: CEW&T Summit (2018–19), LSGSC (2017), IST Conference (2017)

Chair: CSCL (2017), AERA (2019)

SELECTED HONORS & AWARDS

Early career workshop, International Conference on Computers in Education | 2019

Provost's Travel Award for Women in Science, Indiana University Bloomington | 2018, 2019

Best Student Paper Award, American Educational Research Association (AERA), Media, Culture, and Learning SIG | 2016