Holly Huey

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I am a research scientist investigating visual abstraction & design, using **quantitative** and **qualitative** methods to **understand how people communicate through visualizations**. I leverage my background in **experimental cognitive psychology** and **data science** to examine the diverse visualization strategies that people use to create visualizations (e.g., diagrams, data visualizations) to convey their knowledge to viewers. My work aims to better inform the development of human-centered visualization technologies and products.

Experience

Research Scientist | University of California San Diego

Sept 2019 – present, San Diego CA

- Lead end-to-end research of 20+ custom coded online experiments, leveraging large-scale crowdsourcing (mTurk, Prolific, SONA), computer vision, and machine learning techniques to quantitatively measure human behavior in visual content creation

- Perform statistical analyses (mixed-effects models, multilevel regression, GLM, ANOVA) and generate data visualizations (ggplot, seaborn) for talks & publications

- Collaborate with cross-functional teams spanning multiple universities to investigate object recognition & abstraction across large-scale datasets

- Communicated findings to scientific and lay audiences through 5 peer-reviewed publications, posters, and 10+ invited domestic & international talks (e.g., Stanford, NYU, UC Berkeley, & Naval Research Lab)

- Teach undergrad classes of 300+ students covering statistics (using R), cognitive psychology, and child development

Research Scientist & Lab Manager | New York University

July 2017 – Aug 2019, New York City NY

- Led research and designed 3D animations for 12+ in-person/online studies investigating navigation, object recognition, and symbolic reasoning tasks with infants, children, and adults

- Mentored 8 honors thesis & grant-sponsored students, trained teams of 10-15 researchers per semester, and facilitated research collaborations with NYC museums and schools

- Launched biweekly workshop series to increase computational literacy and research design skills among undergrad researchers by teaching Adobe CC and experimental/statistical programs (R, Blender, PsychoPy)

Research Assistant | MIT & Harvard

Oct 2016 – June 2017, Boston MA

- Designed 3D animations and conducted visuoperceptual experiments using multiple eye-tracking paradigms to probe reasoning about physical events

- Conducted pro-social behavior studies to investigate people's causal inferences about mental states and competence

Product Content Writer | Talla, AI Chatbot startup

Oct 2016 – May 2017, Boston MA

- Analyzed behavioral data on user responses and product performance, wrote 20+ workflow templates, e-books, and articles about the advantages and risks of introducing AI automation

- Perfomed comparative analyses & presented findings to stakeholders

Platform Intern | Pillar, Venture Capital Firm (specialized in AI startups)

Oct 2016 – May 2017, Boston MA

- Analyzed investment value of 100+ startup companies (focused on NLP, IoT, autonomous vehicles, AI healthcare)

Education

University of California San Diego
Ph.D., Experimental Psychology | June 2024
M.A., Experimental Psychology | Feb 2022

St. John's College — Annapolis, MD
B.A., Liberal Arts | May 2016
Dual major: History of Math & Sciences, Philosophy
Dual minor: Comparative Literature, Classics

Skills

Research Methods
- mixed-methods • A/B testing • human factors
- wire framing • heuristic evaluation • gamification
- developmental methods • cultural considerations
- benchmarking • survey design • literature review

Experimental Programming & Software
- javascript • HTML • CSS • jsPsych • node.js • unix
- github • latex • matlab • mongoDB • AWS

Statistical Programming & Analysis
- R (tidyverse) • Python (pandas, numpy)
- model fitting • model comparisons
- hypothesis testing • population comparison
- time series analysis

Design Skills
- Adobe CC • Blender 3D modeling & animation
- Unity • video & audio editing • sketching

Communication
- quantitative data visualization • scientific writing
- research talks • workshop creation & organization

Selected Projects

Visual Communication Tradeoffs: Conveying Object Identity vs. Object Function

- Spearheaded design, testing, & analysis of studies investigating how people prioritize visual information depending on their communicative goals

- Crowdsourced text annotations & used computer vision techniques to quantify the visuospatial content

Semantic Structures in Visualizations

- Designed multiple annotation studies to analyze large-scale cross-cultural and developmental datasets to examine conceptual development about objects

Data Visualization Strategies across Varying Statistical Expertise

- Analyze how novice & expert designers generate data visualizations and how representational choices impact viewer interpretation and behavior