Chin Tseng

chint@cs.unc.edu   •   https://chintseng.com

Education

University of North Carolina - Chapel Hill (UNC)   **Chapel Hill, NC**
Ph.D. in Computer Science. Advised by Prof. Danielle Szafir   *Aug. 2021 – Present*
New York University (NYU)   **New York, NY**
M.S. in Computer Science   *Sept. 2018 – May 2020*
National Tsing Hua University (NTHU)   **Hsinchu, Taiwan**
B.S. in Computer Science   *Sept. 2013 – Feb. 2018*
Technische Universität Dresden (TUD)   **Dresden, Germany**
Exchange Student of Computer Science Program   *Sept. 2016 – Sept. 2017*

Publications

Redundant is Not Redundant: Automating Efficient Categorical Palettes Design
Unifying Color & Shape Encodings with CatPAW   **CHI 2026**
***Chin Tseng**, Arran Zeyu Wang, Ghulam Jilani Quadri, Danielle Albers Szafir*
- Designed CatPAW, a web tool that generates optimal color–shape palettes from empirical visualization studies
- Conducted crowdsourced experiments showing redundant color–shape encodings enhance accuracy in scatterplot perception

Characterizing Visualization Perception with Psychological Phenomena:
Uncovering the Role of Subitizing in Data Visualization (Best Papers Honorable Mentions)   **VIS 2025**
*Arran Zeyu Wang, Ghulam Jilani Quadri, Mengyuan Zhu, **Chin Tseng**, Danielle Albers Szafir*
- Conducted experiments revealing six-category perceptual threshold linking visualization performance to psychological subitizing
- Bridged visualization design and cognitive psychology, providing empirically grounded heuristics for categorical color and shape

Graphical Perception of Icon Arrays versus Bar Charts
for Value Comparisons in Health Risk Communication   **VIS 2025**
*Jade Kandel, Jiayi Liu, Arran Zeyu Wang, **Chin Tseng**, Danielle Szafir*
- Designed crowdsourced studies comparing icon arrays and bar charts for value estimation and decision-making accuracy
- Developed evidence-based recommendations improving health communication by aligning perception with decision behaviors

Uncovering How Scatterplot Features Skew Visual Class Separation   **CHI 2025**
Chin Tseng, S. Sandra Bae*, Takanori Fujiwara*, Danielle Albers Szafir*
- Explore how shape encodings influence perception in scatterplots and characterize factors for building effective shape palettes
- Develop a model to support effective shape palette design and embedding into a web-based recommendation tool

Shape It Up: An Empirically Grounded Approach for Designing Shape Palettes   **VIS 2024**
***Chin Tseng**, Arran Zeyu Wang, Ghulam Jilani Quadri, Danielle Albers Szafir*
- Explore how shape encodings influence perception in scatterplots and characterize factors for building effective shape palettes
- Develop a model to support effective shape palette design and embedding into a web-based recommendation tool

Revisiting Categorical Color Perception in Scatterplots:
Sequential, Diverging, and Categorical Palettes (Best Short Paper Award)   **EuroVis 2024**
***Chin Tseng**, Arran Zeyu Wang, Ghulam Jilani Quadri, Danielle Albers Szafir*
- Explore the impact of sequential, diverging, and categorical color palettes on categorical perception
- Characterize which color factors lead to more robust performance over larger numbers of categories

Measuring Categorical Perception in Color-Coded Scatterplots   **CHI 2023**
***Chin Tseng**, Ghulam Jilani Quadri, Arran Zeyu Wang, Danielle Albers Szafir*
- Characterize the effect of the numbers of categories and color palette in perceptions of multiclass scatterplots
- Present an exploratory analysis of key factors for effective color palette design

Effects of data distribution and granularity on color semantics
for colormap data visualizations   **VIS 2023**
*Clementine Zimnicki, **Chin Tseng**, Danielle Albers Szafir, Karen B. Schloss*
- Identify the contribution of spatial factors, data distribution and granularity to inferences about colormap data visualizations
- Raise new questions about how spatial distributions of data influence color semantics in colormap data visualizations

Research Experience

Graphical Perception, Visualization, Dataset Generation, Application, Data Science   **UNC**
Researcher, VisuaLab, Prof. Danielle Szafir   *Aug. 2021 – Present*

- Explore how Sketch-based image synthesis can assist one visualization dataset generation
- Build actionable models of how people perceive visualized data to improve and optimize visualization designs
- Explore how visual factors can influence the effectiveness of visualization and lead to better data communication
- Focus on how generative models can be applied to visualization dataset generation and commit to related studies

Cluster3D: A Dataset and Benchmark for Clustering Non-Categorical CAD Models   **NYU**
Researcher, Geometric Computing Lab, Prof. Daniele Panozzo & Prof. Chen Feng   *May. 2020 – Aug. 2021*
- Identify an existing shape ontology and categorization that is suitable for CAD models
- Develop a set of tools to load and process the geometry, and support crowdsourced annotations
- Train and evaluate the annotated ABC dataset by using existing 3D deep learning methods

Job Experience

PhD Research Intern   **Remote**
Epsilon (Provide data-driven approach to advertising and marketing)   *May 2025 – Aug. 2025*
- Developed interactive visualization components using React and D3, integrated into Epsilon's internal analytics dashboard
- Designed end-to-end visualization systems aligned with company objectives and marketing analytics workflows
- Analyzed large-scale real-world datasets to evaluate business impact and derive actionable marketing insights

Search Automation, Software Engineer Intern   **New York, NY**
Spruce (The real estate title tech company, reducing time, cost and risk)   *June 2019 – Dec. 2019*
- Developed web crawling projects and autonomous title search with Python and Selenium
- Improved and refined the search results by using Natural Language Processing methods
- Automated the real estate title search process, reducing manual time cost from 3 days to less than 5 minutes, and increasing company annual revenue of 4+ million USD

Android Warehouse Management Application, Software Engineer Intern   **Taipei, Taiwan**
GoFreight (The 15 most promising logistics tech startups, with freight forwarding software)Mar. 2018 – Aug. 2018
- Developed mobile app with React Native, with the features of barcode scanning, cargo information updating, cargo pictures taking and stock information synchronization, resulting in 1000 employees users of freight forwarders

In-App Game Trial Application, Android Developer Intern   **Taipei, Taiwan**
VMFive Inc (The tech startup, focusing on playble mobile Ads solution)   *July 2015 – Aug. 2015*
- Developed an Android mobile app with Java and integrated the playable mobile advertising, allowing users to do free trials on several Android mobile games without downloading

Programming Skills

JavaScript: D3, ReactJS, React Native, Node.js, WebGL   **C++**: OpenGL, OpenCV, Nachos

API: MTurk, Google Cloud Platform, RESTful API   **C#**: Unity

Others: Python, Matlab, HTML, CSS, SQL, Java, Android Studio, OCaml, Scala, Mathematica