

ANJANA ARUNKUMAR

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🔗 <https://aarunku5.github.io/>

🔍 Google Scholar

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🌐 LinkedIn

✉ Carnegie Hall, Northeastern University, Oakland, CA 94613

RESEARCH INTEREST

My research program focuses on **democratizing data visualization** by making complex data more accessible and actionable to **diverse audiences**. I focus on leveraging principles of **human visual perception** and **behavioral science** to study how people engage with and make decisions using visualizations. In particular, I have explored the impact of **multicultural and multilingual influences**, as well as **cognitive biases** on the consumption of visual information.

Beyond visualization, I also have a background in **artificial intelligence and natural language processing**, where I study bias in **large language models**, techniques for learning from **instructions and prompt engineering**, and the design of explainable systems for **applied machine learning and data science**. I have also investigated how visualization techniques can improve decision support in domains such as **supply chain and project management**.

Looking ahead, I am excited to expand my research to develop visualization tools tailored to **diverse cultures and languages**. I am particularly interested in creating **data communication paradigms** such as patient decision aids and risk management tools, using **natural language specification systems**, to support populations with **low data literacy**.

WORK EXPERIENCE

Northeastern University

Postdoctoral Research Associate

📅 June 2024 – present

📍 Khoury College of Computer Sciences, Oakland, California

- Studying how **multicultural and linguistic factors** as well as **cognitive biases** shape the ways people interpret and make **decisions** with visualizations
- Exploring how **AI and natural language processing** can help support more inclusive and interpretable visual communication.
- Designing **visual tools** that disambiguate the outputs and reasoning of **AI systems**, making them easier for lay people to check, interpret, and use responsibly in everyday decision-making.
- **Supervisor:** Lace Padilla

EDUCATION

Arizona State University

Ph.D. in Computer Science

📅 August 2019 – May 2024

📍 School of Computing and Augmented Intelligence, Tempe, Arizona

- **Dissertation:** The D.U.C.K. Bridge: Empowering Non-Experts in Data Visualization. **Awardee** of Dean's Dissertation Award, ASU, 2024.
- **Committee:** Chris Bryan, Ross Maciejewski, Chitta Baral, Gi-Yeul Bae
- **Research Assistant** at Sonoran Visualization Laboratory, School of Computing and Augmented Intelligence.

Meenakshi Sundararajan Engineering College (Anna University)

B.E. in Computer Science and Engineering

📅 June 2015-May 2019

📍 Department of Computer Science, Chennai, Tamil Nadu, India

- Anna University **Gold Medal Recipient** (2015-19), for 1st Rank in B.E. Computer Science and Engineering amongst 15000 students
- Published in **2 conferences and 1 journal** as primary contributor.

ACHIEVEMENTS

- **Awardee** of Dean's Dissertation Award, ASU, 2024.
- **Awardee** of Gerald Farin Memorial Fellowship, ASU, 2023.
- **Honorable Mention** in VAST challenge, 2020.

- **Finalist** in Undergraduate Poster competition, NEDSI 2018.

RESEARCH EXPERIENCE

Northeastern University

Postdoctoral Research Associate

📅 June 2024 – present

📍 Oakland, CA, USA

- Supervisor: Lace Padilla
 - Researching the influence of *multicultural and linguistic factors*, as well as *cognitive biases*, on how people engage with and make *decisions* using visualizations.
 - Conducting human subjects studies using *eye tracking and EEG* to measure physiological responses to visualization paradigms.
 - Developing *AI tools for mathematical reasoning*, combining *natural language* and *visual explanations* to make concepts more accessible.
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Arizona State University

Graduate Researcher

📅 August 2019 – Present

📍 Tempe, AZ, USA

- Advisor: Chris Bryan
 - Research on topics including visualization, data storytelling, visual cognition and perception, natural language processing, artificial intelligence, and data analytics as a member of the Sonoran Visualization Laboratory. Additional duties include leading lab meetings, planning group outings, advising junior members, and helping with grant writing.
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National Renewable Energy Laboratory

Graduate Student Intern

📅 June 2023 – August 2023

📍 Golden, CO, USA

- Mentor: Kristi Potter, Samantha Molnar
 - Use of **React-Native**, **Python** to implement touchscreen interactions for power system visualization exploration.
 - Performing **touch gesture-tracking** to implement auto-detection of user uncertainty during visualization viewing.
 - Implementing **auto-reconfiguration** of visualization appearance to resolve user difficulties and validating with a human subject study.
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Paragon Digital Services Pvt. Ltd., Dentsu Aegis

Undergraduate Student Intern

📅 December 2018 – April 2019

📍 Chennai, TN, India

- Mentor: Naresh Ninavarapu
 - Use of **R**, **Python** to implement intelligent client-product recommendation interface via **abstractive summarization**.
 - Performing **granular sentiment detection**, using a recurrent neural network approach, over a dataset of online reviews for Slack.
 - Building a client interface, flagging sentiments and sarcasm in opinion units, and generating an **interactive visualization** dashboard of the same.
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Paragon Digital Services Pvt. Ltd., Dentsu Aegis

Undergraduate Student Intern

📅 June 2018 - August 2018

📍 Chennai, TN, India

- Mentor: Naresh Ninavarapu
- Training in Data Analysis Techniques, **Digital Marketing and Business Intelligence Tools**.
- Analysis of chain stores for profit analysis and factors: use of **Tableau and SQL** to make **recommendations** regarding marketing strategies for client products.
- **Survey design and ad campaign structuring** for an image publishing service company using Google Data Studio.
- Use of **R tool/Python** to implement classification algorithms on data sets for an optical wear company.

Meenakshi Sundararajan Engineering College (Anna University)

Undergraduate Researcher

📅 June 2017 – May 2019

📍 Chennai, TN, India

- Advisor: M.K. Sandhya
 - Undergraduate research on sentiment analysis and visualization of natural language product reviews, to generate abstractive summarizations for client reports. Organized inter-college research symposiums to showcase departmental work. Also chief editor of department's monthly newsletter, Techie Talk.
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TEACHING EXPERIENCE

Guest Lecturer

Data Visualization, CSE 478 and 578

📅 Spring 2024

📍 Arizona State University

Instructor: Chris Bryan Lectures on real-world impact of visualizations complimentary to theory concepts from the main class curriculum, including visualization design technologies, impact of natural language and visual cognition on data comprehension, how visualizations can be used to spread misinformation, and developing visualization pedagogy for low data-literacy populations. The material was developed to promote the discussion of current visualization research questions and proposed solutions in literature.

Instructor

Introduction to Programming Languages, CSE 240 (Online)

📅 Spring 2024

📍 Arizona State University

Lead instructor (300 students) teaching fundamentals of diverse paradigms of programming languages, including procedural (Language C), object-oriented (Language C++), functional (Language LISP), and logic (Language Prolog) paradigm. My responsibilities include holding online office hours for three hours per week, mentoring undergraduate student projects, and grading assignments. The curriculum and assignments were designed by ASU Online facilitators.

Teaching Assistant

Data Visualization, CSE 578

📅 Fall 2022

📍 Arizona State University

Instructor: Chris Bryan Students learn about techniques and algorithms for creating effective visualizations based on principles from graphic design, visual art, perceptual psychology and cognitive science to enhance the understanding of complex data. My responsibilities included holding office hours, and mentoring independent graduate student projects intended for workshop/main conference publication (HTML, JavaScript, D3, AWS, NodeJS, Python).

Teaching Assistant

Database Management, CSE 412

📅 Fall 2019

📍 Arizona State University

Instructor: Mutsumi Nakamura Students are introduced to DBMS concepts. Data models and languages. Relational database theory. Database security/integrity and concurrency. My responsibilities included grading assignments, holding office hours, mentoring student projects, and leading a two-hour recitation session every week teaching the DBMS setup and queries (SQL, SCALA, R).

Teaching Assistant

Data Structures and Algorithms, CSE 310

📅 Fall 2019

📍 Arizona State University

Instructor: Yingzhen Yang Students learn about advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, external sorting. My responsibilities included grading assignments, holding office hours, and leading a two-hour recitation session every week teaching the algorithm implementations and case study problems (Visual Studio, C++).

STUDENT MENTORING

- Shira Michel (Spring 2025 – Present); Project: Diagnosing AI-errors in STEM problems; *Graduate Student at Northeastern*
- Jinhan Park (Fall 2024); Project: Reviewing and Designing Visual Patient Decision Aids; *Undergraduate Student at Northeastern*
- Chase Stokes (Summer 2024 – Summer 2025); Project: Identifying the Role of Text in Data Visualization; *Graduate Student at UC Berkley*
- Zhuojun Jiang (Fall 2024 – Present); Project: Designing Visualizations for Color-Deficient Vision that Inspire Emotional Engagement; *Graduate Student at ASU*
- Agastya Seth, Yang Husurianto (Fall 2023 – Spring 2024); Project: Visualization of Natural Language Argumentation; *Graduate Student at ASU*
- Arshdeep Sachdeva, Dhruvil Joshi, Vedant Vijay Parikh (Spring 2023 – Present) ; Project: Developing a Visualization Authoring Tool using Natural Language Prompts; *Graduate Student at ASU*
- Jai Narula (Fall 2022 – Present) ; Project: Developing a Visualization Orchestration Tool for Classrooms; *Graduate Student at ASU*
- Jaimie Liu (Fall 2021 – Spring 2022) ; Project: Visualization of Climate Change Data in Immersive and Desktop Virtual Reality; *Undergraduate Student at ASU*
- Jose Elenes (Fall 2021 – Spring 2022) ; Project: Visualization of Drone Flight Anomalies; *Graduate Student at ASU*
- Shubham Sharma, Rakhi Agarwal, Sriram Chandrasekaran (Fall 2021 – Spring 2022) ; Project: Visualization of Data Bias in Natural Language Instructions and Prompts; *Graduate Student at ASU*
- Bhavdeep Sachdeva (Fall 2019 – Spring 2021) ; Project: Designing a Data Quality Index for Natural Language Datasets; *Graduate Student at ASU*
- Shashank Ginpalli (Fall 2020 – Spring 2021) ; Project: Modelling the Complexity of Flow Diagrams; *Graduate Student at ASU*
- Nitin Gupta (Fall 2019 – Spring 2020) ; Project: Designing Visualizations for Power System Substations; *Undergraduate Student at ASU*

PUBLICATIONS – PEER REVIEWED JOURNAL PUBLICATIONS

1. An Analysis of Text Functions in Information Visualization 📌¹
Chase Stokes, **Anjana Arunkumar**, Lace Padilla, and Marti Hearst
[IEEE Transactions on Visualization and Computer Graphics, 2025](#)
2. The Hue-Man Factor: An Empirical Evaluation of Visualization Perception and Accessibility Across Color Vision Profiles 📌
Zhuojun Jiang, **Anjana Arunkumar**, and Chris Bryan
[IEEE Transactions on Visualization and Computer Graphics, 2025](#)
3. Modeling and Measuring the Chart Communication Recall Process 📌
Anjana Arunkumar*, Lace Padilla, and Chris Bryan
[Computer Graphics Forum, 2025](#)
4. Lost in Translation: How Does Bilingualism Shape Reader Preferences for Annotated Charts? 📌
Anjana Arunkumar*, Lace Padilla, and Chris Bryan
[ACM SIGCHI 2025](#)
5. Mind Drifts, Data Shifts: Utilizing Mind Wandering to Track the Evolution of User Experience with Data Visualizations 📌
Anjana Arunkumar*, Lace Padilla, and Chris Bryan
[IEEE Transactions on Visualization and Computer Graphics, 2024](#)
6. Comparing Collaborative Visualization Behaviors in Desktop and Augmented Reality Environments
Michael Kintscher, Jinbin Huang, **Anjana Arunkumar**, Ashish Amresh, and Chris Bryan
[Proceedings of the ACM Symposium on Virtual Reality Software and Technology, 2023](#)
7. Image or Information? Examining the Nature and Impact of Visualization Perceptual Classification 📌
Anjana Arunkumar*, Lace Padilla, Gi-Yeul Bae, and Chris Bryan
[IEEE Transactions on Visualization and Computer Graphics, 2023](#)
8. LINGO: Visually Debiasing Natural Language Instructions to Support Task Diversity 📌
Anjana Arunkumar*, Shubham Sharma, Rakhi Agrawal, Sriram Chandrasekaran, and Chris Bryan
[Computer Graphics Forum, 2023](#)
9. PMU Tracker: A Visualization Platform for Epicentric Event Propagation Analysis in the Power Grid 📌
Anjana Arunkumar*, Andrea Pinceti, Lalitha Sankar, and Chris Bryan
[IEEE Transactions on Visualization and Computer Graphics, 2022](#)
10. PMUVIS: A Large Scale Platform to Assist Power System Operators in a Smart Grid
Anjana Arunkumar*, Nitin Gupta, Andrea Pinceti, Lalitha Sankar, and Chris Bryan

¹📌 indicates a conference presentation

11. Bayesian Modelling of Alluvial Diagram Complexity 📌
Anjana Arunkumar*, Shashank Ginjipalli, and Chris Bryan.
[IEEE Transactions on Visualization and Computer Graphics, 2021](#)

PUBLICATIONS – PEER REVIEWED CONFERENCE PUBLICATIONS (FULL PAPER)

1. Design-Decision Fit: Modeling How Visualization Quality Mediates Supply Chain Task Performance 📌
Anjana Arunkumar*, Arunkumar Madapusi, Lace Padilla, and Spencer Castro
[Decision Sciences Institute Annual Conference, 2025](#)
2. Real-Time Visual Feedback to Guide Benchmark Creation: A Human-and-Metric-in-the-Loop Workflow 📌
Anjana Arunkumar*, Swaroop Mishra, Bhavdeep Sachdeva, Chitta Baral, and Chris Bryan
[Proceedings of the Conference of the European Chapter of the Association for Computational Linguistics, 2023](#)
3. Benchmarking Generalization via In-Context Instructions on 1,600+ Language Tasks.
Swaroop Mishra*, Yizhong Wang*, Pegah Alipoormolabashi, Yeganeh Kordi, Amirreza Mirzaei, **Anjana Arunkumar et. al.**, Chitta Baral, Yejin Choi, Noah A. Smith, Hannaneh Hajishirzi, Daniel Khashabi
[Proceedings of the Conference on Empirical Methods in Natural Language Processing, 2022](#)
4. How Robust are Model Rankings : A Leaderboard Customization Approach for Equitable Evaluation 📌
Swaroop Mishra*, **Anjana Arunkumar***
[Proceedings of the AAAI Conference on Artificial Intelligence, 2021](#)
5. Abstractive Summarization Through Sentiment Analysis Of User Product Reviews - An RNN Approach 📌
Anjana Arunkumar*, Sandhya, M.K.
[Decision Sciences Institute Annual Conference, 2019](#)
6. Active Learning Methodology: Bridging Theory and Practice 📌
Anjana Arunkumar*, Sandhya, M.K. *, Arunkumar Madapusi*
[Southwest Decision Sciences Institute Annual Conference, 2019](#)

PUBLICATIONS – PEER REVIEWED CONFERENCE PUBLICATIONS (EXTENDED ABSTRACT)

1. Examining Adaptive Visualization Approaches for Supply Chain Resilience and UAV-Enabled Logistics 📌
Anjana Arunkumar*, Arunkumar Madapusi, Daniel Ortiz
[Southwest Decision Sciences Institute Annual Conference, 2026](#)
2. Examining the Effects of Task-Design Fit on Decision Quality in Supply Chain Analytics 📌
Anjana Arunkumar*, Arunkumar Madapusi, Daniel Ortiz
[Southwest Decision Sciences Institute Annual Conference, 2026](#)
3. Designing for Trust: Source Attribution Effects in AI-Augmented Data Visualization 📌
Anjana Arunkumar*, Arunkumar Madapusi, Daniel Ortiz
[Data Science, Machine Learning & AI Specific Interest Group at Decision Sciences Institute Annual Conference, 2025](#)
4. Leveraging Data Visualizations to Mitigate In-Group Bias in Crowdfunding: Promoting Equity and Inclusivity Across Campaigner Demographics 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2024](#)
5. Enhancing Trust in Startup Investments: Leveraging Data Visualizations for Unbiased Funding for Female Entrepreneurs 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2024](#)
6. Exploring the Influence of Visual Features and Emotion-driven Perception on Decision Quality in Visualizations 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Southwest Decision Sciences Institute Annual Conference, 2024](#)
7. Exploring Visual Feature Variation and Decision-maker Judgment in Educational Simulation Visualizations: A Theory-based Approach 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Southwest Decision Sciences Institute Annual Conference, 2024](#)
8. Examining the Effect of Visualization Proxemics on Decision Making using Touchscreen Dashboards 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2023](#)
9. Automated Construction of Business Intelligence Dashboards Using Artificial Intelligence Tools 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2023](#)
10. Examining The Effects of Visual Redundancy on Understanding Uncertainty Representations in Schedule Risk Analysis 📌
Anjana Arunkumar*, Daniel Ortiz, and Arun Madapusi
[Southwest Decision Sciences Institute Annual Conference, 2023](#)

11. Examining the Effect of Reconfiguration Interactions on Understanding Uncertainty in Supply Chain Disruption 📌
Anjana Arunkumar*, Daniel Ortiz, and Arun Madapusi
[Southwest Decision Sciences Institute Annual Conference, 2023](#)
12. Examining the Effect of Visual Redundancy on the Understanding of Visualizations in Procurement and Sourcing 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2022](#)
13. Examining the Effect of Reconfiguration Interactions on the Understanding of Anomalies in Supply Chain Management 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2022](#)
14. Evaluation of Visual Uncertainty Representations in Schedule Risk Analysis 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Midwest Decision Sciences Institute Annual Conference, 2022](#)
15. Modelling the Complexity of Risk Centered Supply Chain Network Visualization 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Midwest Decision Sciences Institute Annual Conference, 2022](#)
16. Impact of Uncertainty Representation on Decision Making for Business Network Visualization 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2021](#)
17. Bayesian Modelling of Uncertainty in Schedule Risk Analysis using Gantt Charts 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2021](#)
18. Modelling the Complexity of Supply Chain Network Visualization 📌
Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2021](#)
19. Strategy-Enterprise System Alignment and Firm Performance 📌
Anjana Arunkumar*, Arunkumar Madapusi*
[Northeast Decision Sciences Institute Annual Conference, 2021](#)
20. Investigating the Influence of Top Management Support in Systemic Enterprise System Deployments 📌
Anjana Arunkumar*, Arunkumar Madapusi*
[Decision Sciences Institute Annual Conference, 2020](#)
21. Examining Data Visualization's Impact on Decision Making 📌
Anjana Arunkumar*, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2020](#)
22. Investigating the Influence of Chart Embellishment on Decision Making 📌
Anjana Arunkumar*, Arunkumar Madapusi
[Decision Sciences Institute Annual Conference, 2020](#)
23. Integration Mechanisms, Absorptive Capacity, & Enterprise Systems 📌
Anjana Arunkumar*, Arunkumar Madapusi*
[Decision Sciences Institute Annual Conference, 2019](#)
24. Relational Capital & Enterprise Systems 📌
Anjana Arunkumar*, Arunkumar Madapusi*
[Decision Sciences Institute Annual Conference, 2019](#)
25. The Role of Consultants in Enterprise Systems 📌
Anjana Arunkumar*, Arunkumar Madapusi*
[Decision Sciences Institute Annual Conference, 2019](#)
26. ES Configurations and their Impact on firm Performance 📌
Anjana Arunkumar*, Monica Jenefer, Arunkumar Madapusi*
[Southwest Decision Sciences Institute Annual Conference, 2019](#)
27. The Role of Moderators in ERP System Deployment Success 📌
Anjana Arunkumar*, Monica Jenefer, Arunkumar Madapusi*
[Southwest Decision Sciences Institute Annual Conference, 2019](#)
28. Competences Influencing Absorptive Capacity in Enterprise Systems 📌
Anjana Arunkumar*
[Decision Sciences Institute Annual Conference, 2018](#)
29. Enterprise System Configuration and Performance 📌
Anjana Arunkumar*
[Decision Sciences Institute Annual Conference, 2018](#)
30. The Influence of Alignment in Enterprise System Deployments 📌
Anjana Arunkumar*

Decision Sciences Institute Annual Conference, 2018

31. Absorptive Capacity in Enterprise Systems 📌
Anjana Arunkumar*, Arunkumar Madapusi
Northeast Decision Sciences Institute Annual Conference, 2018 (Finalist : Undergraduate Poster Competition)
32. Configuring SME Enterprise Systems 📌
Anjana Arunkumar*, Arunkumar Madapusi*
Northeast Decision Sciences Institute Annual Conference, 2018
33. Critical Success Factors in Enterprise Systems 📌
Anjana Arunkumar*, Arunkumar Madapusi*
Northeast Decision Sciences Institute Annual Conference, 2018
34. The Influence of Competency Factors in Enterprise System Deployments 📌
Arunkumar Madapusi*, **Anjana Arunkumar**
Decision Sciences Institute Annual Conference, 2017
35. The Influence of Knowledge Capabilities in Enterprise System Deployments 📌
Arunkumar Madapusi*, **Anjana Arunkumar**
Decision Sciences Institute Annual Conference, 2017
36. The Influence of Knowledge Capital in Enterprise System Deployments 📌
Arunkumar Madapusi*, **Anjana Arunkumar**
Decision Sciences Institute Annual Conference, 2017

PUBLICATIONS – PEER REVIEWED WORKSHOP PAPERS

1. A Visual Exploration of Fair Evaluation for ML - Bridging the Gap Between Research and the Real World 📌
Anjana Arunkumar*, Swaroop Mishra, Chris Bryan
Visualization for AI Explainability (VISxAI workshop), IEEE Transactions on Visualization and Computer Graphics, 2020
2. DQI: A Guide to Benchmark Evaluation
Swaroop Mishra*, **Anjana Arunkumar**, Bhavdeep Sachdeva, Chris Bryan, Chitta Baral
Uncertainty & Robustness in Deep Learning Workshop, ICML, 2020
3. Our Evaluation Metric Needs an Update to Encourage Generalization 📌
Swaroop Mishra*, **Anjana Arunkumar**, Chris Bryan, Chitta Baral
Uncertainty & Robustness in Deep Learning Workshop, ICML, 2020
4. VAIDA: An Educative Benchmark Creation Paradigm using Visual Analytics for Interactively Discouraging Artifacts 📌
Swaroop Mishra*, **Anjana Arunkumar***, Bhavdeep Sachdeva, Chris Bryan, Chitta Baral
Crowd Science Workshop: Remoteness, Fairness, and Mechanisms as Challenges of Data Supply by Humans for Automation, NeurIPS, 2020
5. Real-Time Visual Feedback for Educative Benchmark Creation: A Human-and Metric-in-the-Loop Workflow Artifacts 📌
Anjana Arunkumar*, Swaroop Mishra, Bhavdeep Singh Sachdeva, Chitta Baral, Chris Bryan
HAMLETS (Human And Machine in-the-Loop Evaluation and Learning Strategies Workshop), NeurIPS, 2020
6. Front Contribution instead of Back Propagation
Swaroop Mishra*, **Anjana Arunkumar**
Beyond Backpropagation: Novel Ideas for Training Neural Architectures (Workshop), NeurIPS, 2020
7. Is High Quality Data All You Need?
Swaroop Mishra*, **Anjana Arunkumar**, Bhavdeep Sachdeva
The pre-registration experiment: an alternative publication model for machine learning research (Workshop), NeurIPS, 2020

PUBLICATIONS – PEER REVIEWED CONTEST ENTRIES

1. TotemFinder: A Visual Analytics Approach for Image-based Key Players Identification
Jinbin Huang*, Aditi Mishra, **Anjana Arunkumar**, Chris Bryan
VAST Challenge, IEEE Transactions on Visualization and Computer Graphics, 2020 (Honorable Mention)

PUBLICATIONS – WORKS IN PROGRESS OR UNDER REVIEW

1. Design-Decision Fit: How Does Visualization Mediate Two-Arm Supply Chain Task Performance
Anjana Arunkumar, Arun Madapusi, Lace Padilla, Spencer Castro (under review, *INFORMS Journal of Applied Analytics*)
2. When Data Beats Demographics: How Visualizations Disrupt Homophily Bias In Crowdfunding
Anjana Arunkumar, Sohvi Heaton, Arun Madapusi, Chris Bryan (under review, *Computer Graphics Forum* 2026)
3. Engagement Vs. Understanding: Comparing Immersive Virtual Reality And Desktop Displays For Climate Data Visualization
Anjana Arunkumar, Jaimie Liu, Chris Bryan (under review, *Computer Graphics Forum* 2026)

4. Off The Chart? Rethinking Annotation Strategies For Bilingual Audiences
Anjana Arunkumar, Lace Padilla (*under review, Computer Graphics Forum 2026*)
5. Visualization Proxemics for Touch Screen Analysis of Smart Grids
Anjana Arunkumar, Samantha Molar, Kristi Potter, Chris Bryan (*in-progress*)
6. Show Your Work: Human-Centered Interfaces for Math AI
Anjana Arunkumar, Shira Michel, Mahsan Nourani, Lace Padilla (*in-progress*)
7. Risk in Frame: How Visualization and Individual Differences Shape Decisions in Uncertain Contexts
Anjana Arunkumar, Michael Correll, Lace Padilla (*in-progress*)

INVITED TALKS

1. Generative AI in Statistics and Analytics Education: Opportunities, Challenges, and Visual Analytics
[Data, Analytics and Statistics Instruction SIG at Decision Sciences Institute Conference](#) , November 2025.
2. Bridging Cognition and Communication: Modeling Recall Dynamics and Multilingual Annotations in Visualization
[Georgia Tech](#), October 2025.
3. Modeling Interpretation in Data Visualization: Bridging Computation, Language, and Decision Making
[INFORMS](#), October 2025.
4. Data Visualization Design for the Mind's Eye: Internalizing What's In Sight
[Emory University](#), October 2023.
5. What's In-Sight: How We Truly Internalize Data Visualizations
[University of Victoria](#), September 2023.
6. Designing Touchscreen Interactions to Resolve User Uncertainty in Spatiotemporal Analysis with Maps
[National Renewable Energy Laboratory](#), July 2023.
7. Examining Signifiers and Affordances in Data Visualization
[Arizona State University](#), October 2021.
8. Data Breach Chronicles: Lessons from Cyber Forensics Case Studies
[Meenakshi Sundararajan Engineering College](#), October 2019
9. Text Mining for Pattern Detection in Digital Forensics
[Meenakshi Sundararajan Engineering College](#), October 2018
10. Data Mining in Criminology – Crime Analysis and Hotspot Mapping
[Madras Institute of Technology](#), September 2018
11. Beyond Metrics: Enhancing Quality with Six Sigma and Benchmarking
[Meenakshi Sundararajan Engineering College](#), October 2017
12. Biomimicry in Robotics: Electronic Skin for Insect-Inspired Models
[Loyola-ICAM College of Engineering and Technology](#), September 2017
13. Smart Skin: How Electronic Skin Technology is Transforming Wearable Devices
[Meenakshi Sundararajan Engineering College](#), October 2016

SERVICE

- **Organizer:**
 - Program Committee Member of AAAI 2025
 - Organizing Committee Member of EnergyVis 2024 (@IEEE VIS)
 - Program Committee Member of Pacific Vis 2025
 - Program Committee Member of IEEE Vis 2024
 - Program Committee Member of EnergyVis 2023 (@IEEE VIS)
 - Program Committee Member of EMNLP Industry Track 2023–2024
 - Program Committee Member of ACL 2023–2024
 - Program Committee Member of EMNLP 2022–2024
 - Program Committee Member of VLDB 2021 Crowd Science Workshop
 - Organizer of E3 symposium 2016-18 at Meenakshi Sundararajan Engineering College (Anna University)
 - Organizer of Kranti symposium 2016-18 at Meenakshi Sundararajan Engineering College (Anna University)
- **Session Chair:**
 - DSI 2025: Strategic Enablers of Supply Chain Performance
 - INFORMS 2025: Topics in Generative AI
 - Vis Short Papers 2024: Perception and Representation
 - DSI 2024: Diversity, Equity, and Inclusion

- DSI, SWDSI 2023: Supply Chain Management, Business Analytics
- DSI, SWDSI 2022: Project Management
- DSI, SWDSI 2021: Supply Chain Management, Project Management
- DSI, SWDSI 2020: Business Analytics, Information Technology Management
- DSI 2019: Business Analytics
- **Reviewer:**
 - Visualization/HCI: IEEE Vis, TVCG, PacificVis, Computer Graphics Forum, ACM SIGCHI, VRST, VAST, Cogent Arts & Humanities, Computers & Graphics
 - NLP/ML: EMNLP, ACL, EACL, ICML, NAACL, NeurIPS, Data Technologies and Applications
 - Management: DSI, SWDSI, NEDSI, MWDSI

TECHNICAL SKILLS

Languages

- Python, R, C, C++, MySQL, Kotlin, Perl

Web Technologies

- D3.js, JavaScript, JSON, NodeJS, HTML, CSS, JQuery, WordPress, Java, XML, Kivy, React, React-Native

Machine Learning Frameworks

- Scikit-Learn, Tensorflow, Keras, NLTK, PyTorch, Huggingface

Tools

- Tableau, Gephi, MATLAB, Git, SPSS, LaTeX, Colab, Eclipse, Google Data Studio

RELEVANT COURSEWORK

- **ASU:** Data Visualization, Natural Language Processing, Current issues in Visual Cognition, Current Issues in Cognitive Science, Statistical Machine Learning: From Theory to Algorithms, Data Mining, Foundation of Algorithms, Artificial Intelligence, Mobile Computing, and Information Assurance & Security.
- **Anna University:** Engineering Graphics, Database Management Systems, Computer Networks, Operating Systems, Software Engineering, Internet Programming, Object Oriented Analysis & Design, Computer Graphics, Cryptography and Network Security, Grid and Cloud Computing, Adhoc and Sensor Networks, Human Computer Interaction, Neural Networks

LANGUAGES SPOKEN

- English- Native Proficiency
- Tamil- Native Proficiency
- Hindi- Professional working proficiency
- Japanese (N4) - Limited working proficiency
- Sanskrit - Limited working proficiency

EXTRA CURRICULAR ACTIVITIES

- Member of DASI, 2024 onwards
- Member of DASMALAI, 2024 onwards
- Member of the AI Club @ASU, 2019–2024
- Member of the Women in STEM Club @ASU, 2019–2024
- Member of the Graduate and Professional Student Association @ASU 2019-2024
- Mentor, ASA DataFest Competition 2023-2024
- Member of the Computer Society of India, 2019–2024
- Member of the Lions Club

- Member of the Interact Club/Rotary International
- Quizzing and Trivia
- Well-versed in Violin, Vocal Music, and Art Media

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