ANJANA ARUNKUMAR

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SUMMARY

My research interests lie at the intersection of visual cognition, natural language, and data visualization. Specifically, I investigate how visualization aesthetics and affordances influence decision-making, and build visual analytics pipelines. I also have a background in exploring bias in natural language models, learning from instructions/prompting, and investigating the influence of visualization techniques in supply chain and project management.

EDUCATION

Arizona State University

Ph.D. in Computer Science

August 2019 – Present

- Research Assistant at Sonoran Visualization Laboratory, School of Computing and Augmented Intelligence, GPA 3.96.

Meenakshi Sundararajan Engineering College (Anna University)

B.E. in Computer Science and Engineering

June 2015-May 2019

- 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

- Honorable Mention in VAST challenge, 2020.
- Finalist in Undergraduate Poster competition, NEDSI 2018.
- Finalist in Accenture Hackdiva, 2018.
- Finalist in Livewire Hackathon, 2017.
- Interact Award of Merit from Rotary International, 2014.
- First Place in Mathematical Competition, Association of Mathematics Teachers of India, 2012.

PUBLICATIONS (SELECTED)

1. Real-Time Visual Feedback to Guide Benchmark Creation: A Human-and-Metric-in-the-Loop Workflow 🔊[1]
   Anjana Arunkumar*, Swaroop Mishra, Bhavdeep Sachdeva, Chitta Baral, and Chris Bryan
   EACL, 2023

2. 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

3. 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

[1]🔊 indicates a conference presentation

RESEARCH INTERNSHIPS

Paragon Digital Services Pvt. Ltd., Dentsu Aegis

December 2018 – April 2019 at Chennai

- 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.

Paragon Digital Services Pvt. Ltd., Dentsu Aegis

June 2018 - August 2018 at Chennai

- 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.

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

PUBLICATIONS (CONTINUED)

4. PMU Tracker: A Visualization Platform for Epicentric Event Propagation Analysis in the Power Grid ◆
   Anjana Arunkumar*, Andrea Pinceti, Lalitha Sankar, and Chris Bryan
   IEEE Visualization Conference, 2022

5. 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
   IEEE Computer Graphics and Applications, 2022

6. 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
   EMNLP 2022

7. How Robust are Model Rankings : A Leaderboard Customization Approach for Equitable Evaluation ◆
   Swaroop Mishra*, **Anjana Arunkumar***
   AAAI 2021

8. Enterprise Systems, Organizational Practices, and Firm Performance: An Innovation Diffusion Perspective ◆
   Arunkumar Madapusi*, **Anjana Arunkumar***
   International Journal of Management Information Systems, 2018

9. 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

10. 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

11. Evaluation of Visual Uncertainty Representations in Schedule Risk Analysis ◆
    Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
    Midwest Decision Sciences Institute Annual Conference, 2022

12. Modelling the Complexity of Risk Centered Supply Chain Network Visualization ◆
    Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
    Midwest Decision Sciences Institute Annual Conference, 2022

13. Bayesian Modelling of Alluvial Diagram Complexity ◆
    Anjana Arunkumar*, Shashank Ginjpalli, and Chris Bryan.
    IEEE Visualization Conference, 2021

14. Impact of Uncertainty Representation on Decision Making for Business Network Visualization ◆
    Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
    Decision Sciences Institute Annual Conference, 2021

15. Bayesian Modelling of Uncertainty in Schedule Risk Analysis using Gantt Charts ◆
    Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
    Decision Sciences Institute Annual Conference, 2021

16. Modelling the Complexity of Supply Chain Network Visualization ◆
    Anjana Arunkumar*, Daniel Ortiz, Arunkumar Madapusi
    Decision Sciences Institute Annual Conference, 2021

17. Strategy-Enterprise System Alignment and Firm Performance ◆
    Anjana Arunkumar*, Arunkumar Madapusi*
    Northeast Decision Sciences Institute Annual Conference, 2021

18. A Visual Exploration of Fair Evaluation for ML - Bridging the Gap

TECHNICAL SKILLS

Languages

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

Web Technologies

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

Machine Learning Frameworks

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

Tools

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

TEACHING EXPERIENCE

Teaching Assistant
Data Visualization, CSE 578

Fall 2022, ASU : 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.

Teaching Assistant
Database Management, CSE 412

Fall 2019, ASU : Students are introduced to DBMS concepts. Data models and languages. Relational database theory. Database security/integrity and concurrency.

Teaching Assistant
Data Structures and Algorithms, CSE 310

Fall 2019, ASU : Students learn about advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, external sorting.

REVIEWING

- Visualization/HCI: IEEE VIS, TVCG, and CGA, PacificVis, EuroVis
- NLP/ML: EMNLP, ACL, ICML, NAACL, NeurIPS, AAAI
- Management: DSI, SWDSI, NEDSI, MWDSI

PUBLICATIONS (CONTINUED)

Between Research and the Real World 🔊
Anjana Arunkumar*, Swaroop Mishra, Chris Bryan
Visualization for AI Explainability (VISxAI workshop), IEEE Visualization Conference, 2020

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

20. DQI: A Guide to Benchmark Evaluation
Swaroop Mishra*, **Anjana Arunkumar**, Bhavdeep Sachdeva, Chris Bryan, Chitta Baral
Uncertainty Robustness in Deep Learning Workshop, ICML, 2020

21. 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

22. 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

23. 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

24. Front Contribution instead of Back Propagation
Swaroop Mishra*, **Anjana Arunkumar**
Beyond Backpropagation: Novel Ideas for Training Neural Architectures (Workshop), NeurIPS, 2020

25. 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

26. Investigating the Influence of Top Management Support in Systemic Enterprise System Deployments 🔊
Anjana Arunkumar*, Arunkumar Madapusi*
Decision Sciences Institute Annual Conference, 2020

27. Examining Data Visualization's Impact on Decision Making 🔊
Anjana Arunkumar*, Arunkumar Madapusi
Decision Sciences Institute Annual Conference, 2020

28. Investigating the Influence of Chart Embellishment on Decision Making 🔊
Anjana Arunkumar*, Arunkumar Madapusi
Decision Sciences Institute Annual Conference, 2020

29. Integration Mechanisms, Absorptive Capacity, Enterprise Systems 🔊
Anjana Arunkumar*, Arunkumar Madapusi*
Decision Sciences Institute Annual Conference, 2019

30. Relational Capital Enterprise Systems 🔊
Anjana Arunkumar*, Arunkumar Madapusi*
Decision Sciences Institute Annual Conference, 2019

31. The Role of Consultants in Enterprise Systems 🔊
Anjana Arunkumar*, Arunkumar Madapusi*
Decision Sciences Institute Annual Conference, 2019

INVITED TALKS

Cyber Forensics
E3 Symposium
📅 2019　　📍 MSEC

Text Mining in Digital Forensics
E3 Symposium
📅 2018　　📍 MSEC

Data Mining in Criminology
SPARK Symposium
📅 2018　　📍 MIT Chromepet

Six Sigma Methodology and Benchmarking
E3 Symposium
📅 2017　　📍 MSEC

Skin Technology and Bio-Infomatics
Knightron Symposium
📅 2017　　📍 Loyola ICAM

Sensitive Skin Technology
E3 Symposium
📅 2016　　📍 MSEC

OTHER EXPERIENCE

- **Organizer:**
  Program Commitee Member of VLDB 2021 Crowd Science Workshop, Organizer of E3 symposium 2016-18 at MSEC (AU), Organizer of Kranti Symposium 2017 at MSEC (AU)
- **Session Chair:**
  DSI 2019: Business Analytics, DSI 2020: Business Analytics, Information Technology Management, DSI 2021: Supply Chain Management, Project Management
- **Mentorship**:
  ASU: Shashank Ginjpalli, Nitin Gupta, Bhavdeep Sachdeva, Shubham Sharma, Jose Elenes, Jaimie Liu, Jai Narula, Arshdeep Sachdeva, Dhrumil Joshi.

LANGUAGES SPOKEN

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

PUBLICATIONS (CONTINUED)

32. Abstractive Summarization Through Sentiment Analysis Of User Product Reviews - An RNN Approach 🔊
Anjana Arunkumar*, Sandhya, M.K.
Decision Sciences Institute Annual Conference, 2019

33. Active Learning Methodology: Bridging Theory and Practice 🔊
Anjana Arunkumar*, Sandhya, M.K.*, Arunkumar Madapusi*
Southwest Decision Sciences Institute Annual Conference, 2019

34. ES Configurations and their Impact on firm Performance 🔊
Anjana Arunkumar*, Monica Jenefer, Arunkumar Madapusi*
Southwest Decision Sciences Institute Annual Conference, 2019

35. The Role of Moderators in ERP System Deployment Success 🔊
Anjana Arunkumar*, Monica Jenefer, Arunkumar Madapusi*
Southwest Decision Sciences Institute Annual Conference, 2019

36. Competences Influencing Absorptive Capacity in Enterprise Systems 🔊
Anjana Arunkumar*
Decision Sciences Institute Annual Conference, 2018

37. Enterprise System Configuration and Performance 🔊
Anjana Arunkumar*
Decision Sciences Institute Annual Conference, 2018

38. The Influence of Alignment in Enterprise System Deployments 🔊
Anjana Arunkumar*
Decision Sciences Institute Annual Conference, 2018

39. Absorptive Capacity in Enterprise Systems 🔊
Anjana Arunkumar*, Arunkumar Madapusi
Northeast Decision Sciences Institute Annual Conference, 2018
(Finalist : Undergraduate Poster Competition)

40. Configuring SME Enterprise Systems 🔊
Anjana Arunkumar*, Arunkumar Madapusi*
Northeast Decision Sciences Institute Annual Conference, 2018

41. Critical Success Factors in Enterprise Systems 🔊
Anjana Arunkumar*, Arunkumar Madapusi*
Northeast Decision Sciences Institute Annual Conference, 2018

42. The Influence of Competency Factors in Enterprise System Deployments 🔊
Arunkumar Madapusi*, **Anjana Arunkumar**
Decision Sciences Institute Annual Conference, 2017

43. The Influence of Knowledge Capabilities in Enterprise System Deployments 🔊
Arunkumar Madapusi*, **Anjana Arunkumar**
Decision Sciences Institute Annual Conference, 2017

44. The Influence of Knowledge Capital in Enterprise System Deployments 🔊
Arunkumar Madapusi*, **Anjana Arunkumar**
Decision Sciences Institute Annual Conference, 2017

EXTRA CURRICULAR ACTIVITIES

- Regular interviewer and writer for the RAPRA Newsletter
- Chief Editor of the Techie Talk Newsletter (2016-2019)
- Member of the Computer Society of India
- Member of the Lions Club
- Member of the Interact Club/Rotary International
- Member of the AI Club (ASU)
- Member of the Women in STEM Club (ASU)
- Quizzing and Trivia
- Well-versed in Violin, Vocal Music, and Art Media