Ajit Jain

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About

Computer Science Ph.D. with 15+ years of experience in conceptualizing, developing, and evaluating state-of-the-art solutions, connecting ideas from human-computer interaction, artificial intelligence, information retrieval, information visualization, and software engineering.

7+ years of experience in managing people, helping them grow and realize their potential. Both as an individual contributor and manager, I have helped create a culture of excellence in the teams I have been a part of, taking them to new heights and delivering unprecedented value to stakeholders.

Citations: **150+** (Google Scholar: https://scholar.google.com/citations?user=B8H-aLkAAAAJ)

- ➔ *Best Paper Honorable Mention Award* at ACM Creativity & Cognition
- ➔ *Best Paper Nomination*, *Best Student Paper Nomination* at ACM Document Engineering

Education

Texas A&M University — College Station, USA
Ph.D. in Computer Science — 2015–2021
Co-Advisors: Dr. Andruid Kerne and Dr. Ruihong Huang
Thesis: How to Support Situated Design Education through AI-Based Analytics

Texas A&M University — College Station, USA
M.S. in Computer Science — 2011–2014
Advisor: Dr. Andruid Kerne
Thesis: TweetBubble: A Twitter Extension Stimulates Exploratory Browsing

Delhi Technological University — Delhi, India
B.E. in Information Technology — 2003–2007

Industry Experience

Full-Time

Audigent — Oakton, USA
Distinguished Engineer / Senior Engineer, Data Architecture & Research — Mar 2022–Present

- ➔ Led state-of-the-art technology solutions critical to driving executive strategy, conceptualizing and developing them in collaboration with stakeholders across business units.
- ➔ Researched, developed, and productionized new techniques, including AI/ML approaches, for cookieless audiences, audience search, audience configuration, and yield optimization.
- ➔ Filed a patent titled *Systems and Method for Simultaneous Relevance and Variety Control in Audience Targeting*, addressing the dual needs of scale and specificity.
- ➔ Led and presented Cognitive Audiences technology, a novel, ID-less, turnkey solution addressing 3P cookie deprecation. Launched in collaboration with Experian, the largest credit bureau in the US.
- ➔ Increased revenue—including creation of new revenue streams—through novel cookieless audience solutions, audience curation platforms, and scale maximization approaches.
- ➔ Awarded with spot bonus for scale maximization work toward addressing the simultaneous needs for scale and specificity in audience targeting.
- ➔ Designed, developed, and optimized large-scale data systems focused on deriving audience analytics and presenting them via dashboards.

➔ Mentored junior engineers in designing and implementing automation, optimization, and analysis processes.

Amobee Los Angeles, USA
Software Engineer, Data Systems Jun 2021–Mar 2022

➔ Collaborated with stakeholders across business units to identify and disambiguate requirements, as well as to validate that the developed solutions meet or surpass the requirements.
➔ Designed, developed, and optimized data pipelines that operate at petabytes scale and deliver ad insights for a range of platforms, including digital and linear media.
➔ Created a 4x faster cross-channel report generation workflow, while also eliminating the need for manual intervention at various steps.
➔ Investigated machine learning models to optimize data pipeline performance, following extraction of novel insights through exploratory data analysis.
➔ Mentored junior engineers in developing and optimizing data pipelines for delivering diverse analytics.

Samsung Noida, India
Lead Engineer / Senior Engineer / Software Engineer Jul 2007–Aug 2011

➔ Played an instrumental role in the commercialization of Java platform for mobile, set-top, and blu-ray product lines, coordinating development across teams in India and S. Korea. Teams' size: 10 members each.
➔ Published a first-author research paper at IEEE U-Media titled *Modified Programming Language Framework for IVRS Accessibility of Graphical User Interfaces*.
➔ Developed, ported, and optimized 2D Graphics module of Java Virtual Machine. Created novel MNG animation support in the graphics layer.
➔ Mentored junior engineers in implementing graphics rendering and optimizing multithreaded execution.
➔ Developed notebook apps focused on remote access and network management, including a Six Sigma project addressing remote desktop performance.
➔ Awarded with 'Best Attitude' and 'Extra Mile' awards for outstanding performance and contribution.
➔ Developed a web-based software component quality evaluation system, including metrics such as SLOC, coupling, cohesion, and cyclomatic complexity.

Internship

Centrum Wiskunde & Informatica Amsterdam, Netherlands
Research Intern Summer 2018
Mentors: Dr. Pablo Cesar and Dr. Abdallah El Ali

➔ Identified a research gap in supporting personal health tracker users in understanding their data.
➔ Developed surveys to gather needs and evaluate visualizations for users' sensemaking of their sleep data.
➔ Identified effective visualizations for sleep tracking through quantitative and qualitative data analyses.

Adobe Research San Jose, USA
Data Scientist Intern Summer 2017
Mentor: Dr. Eunyee Koh

➔ Identified a research problem in audience segmentation, engaging in discussions with marketing experts.
➔ Developed interactive visualization of large-scale graph data to present audience overlaps across campaigns.
➔ Established the system's efficacy through user studies followed by quantitative and qualitative data analyses.

Google Mountain View, USA
Software Engineering Intern Summer 2016
Mentor: Amos Yoffe

➔ Developed module for presenting message results in Android *In Apps* search, clustered by topic and time.
➔ Validated the new presentation method by creating a test dataset of messages and comparing search results.
➔ Launched in September 2016, making the feature available worldwide.

Google Summer of Code College Station, USA
Student Developer Intern Summer 2012
Host Organization: Interface Ecology Lab, Texas A&M University

➔ Developed a RESTful service for meta-metadata structured web semantics represented in XML / JSON format.

➔ Developed caching, database integration, logging, testing, and deployment modules.
➔ Deployed the service in a production environment following a thorough investigation of available web servers.

Academic Research Projects

- **Design Analytics** [Human-Computer Interaction, Artificial Intelligence] Spring 2017–Spring 2021

  A human-centered AI investigation for assisting instructors in assessing a range of visual and conceptual characteristics present within student design work.

  ➔ Engaged co-design discussions and workshops to understand instructors' situated practices and needs.
  ➔ Developed a first-of-its-kind AI recognizer to measure students' use of space and scale in their free-form design work.
  ➔ Deployed AI-based analytics via dashboards, as a technology probe, in situated course contexts.
  ➔ Established efficacy through quantitative precision-recall measures and qualitative analysis of instructor interviews using a grounded theory approach.

- **TweetBubble** [Human-Computer Interaction] Fall 2013–Fall 2016

  A Chrome Extension for Twitter users to follow @usernames, #hashtags associations without tabs or windows.

  ➔ Developed and deployed Chrome Extension, making it available worldwide.
  ➔ Conducted studies during societal events such as the Academy Awards and Super Bowl.
  ➔ Developed ideation metrics of exploratory browsing, including Fluency, Flexibility, and Novelty.
  ➔ Established efficacy through a mixed methods evaluation, including quantitative ideation metrics and qualitative analysis of user experience data using grounded theory.

- **Event Indicators** [Natural Language Processing] Spring 2016–Fall 2016

  A weakly supervised approach for extracting and clustering event indicators from Twitter social media.

  ➔ Cleaned up event relevant tweets, filtering duplicates arising from exact matches, substrings, punctuations, etc.
  ➔ Applied bootstrapping to acquire a variety of civil unrest event cues, starting from a single strong indicator.

- **BigSemantics** [Software Engineering] Fall 2012–Fall 2016

  A software architecture for developing meta-metadata semantics powered dynamic exploratory browsing interfaces.

  ➔ Developed new data models, extraction rules, and presentation semantics for social media.
  ➔ Developed a RESTful service to facilitate semantics-driven application development across a range of contexts.

- **EvolutionWorks** [Human-Computer Interaction, Information Retrieval] Fall 2011–Spring 2012

  A free-form, zoomable space facilitating browsing, collection, and sensemaking of research papers interconnections.

  ➔ Developed interface for presenting papers as cards within the free-form zoomable space.
  ➔ Developed algorithm for determining representative terms present within a cluster when the user zooms out.
  ➔ Established efficacy through user studies, comparing the interface with tabbed browsers.

- **PhotoNav** [Human-Computer Interaction] Fall 2011–Spring 2012

  A mixed reality investigation for assisting pedestrian navigation through the means of photographs.

  ➔ Developed the NavCurator application for the specification of navigation paths over maps.
  ➔ Evaluated handheld and head-mounted displays—through user studies—for assisting pedestrian navigation.

Awards & Achievements

- **Senior Membership**, IEEE 2024
- **Highly Useful Review** Recognition for ACM Creativity & Cognition 2024
- **Spot Bonus** for Scale Maximization work at Audigent 2022

- **Best Paper Nomination** at ACM Document Engineering 2021
- **Best Student Paper Nomination** at ACM Document Engineering 2021
- **Student Travel Grant**, College of Engineering, Texas A&M 2021
- **Best Teaching Assistant Nomination(s)**, Dept. of Computer Science and Engineering, Texas A&M 2018–2021
- **Outstanding Reviewer** Recognition for ACM CHI PLAY Full Papers 2019
- **Academy for Future Faculty Certificate**, Center for Teaching Excellence, Texas A&M 2018
- **Student Travel Grant**, College of Engineering, Texas A&M 2017
- **Student Travel Grant**, National Science Foundation 2017
- **Best Paper Honorable Mention** at ACM Creativity & Cognition 2015
- **Student Travel Grant**, College of Engineering, Texas A&M 2015
- **Extra Mile Award** at Samsung 2010
- **Best Project Award(s)** at Samsung 2008, 2010
- **Best Attitude Award** at Samsung 2008
- **Six Sigma Green Belt** at Samsung 2008

Patents

1. **Jain, A.**, Griffiths, M., Spiegelman, M., Peng, K., and Stein, D., Predictive Pop, Inc. d/b/a Audigent. *Systems and Method for Simultaneous Relevance and Variety Control in Audience Targeting.* U.S. Patent Application 18/406,156, filed Jan 7, 2024.

2. Subramanian, M., Bansal, R.K., **Jain, A.**, Khandelwal, D., Agrawal, G., Solanki, N. and Thakur, P., Samsung Electronics Co Ltd, 2013. *Display Device and Method for Presenting Information on Entities Displayed on Video Content.* U.S. Patent Application 13/888,669, filed May 7, 2013.

Manuscripts

1. **Jain, A.**, Kerne, A., Fowler, H., Seo, J., Newman, G., Lupfer, N., and Perrine, A. (2024). How Could AI Support Design Education? A Study Across Fields Fuels Situating Analytics. *arXiv preprint arXiv:2404.17390.*

2. **Jain, A.**, Kerne, A., Lupfer, N., Britain, G., Perrine, A., Choe, Y., Keyser, J., Huang, R., Seo, J., Sungkajun, A., Lightfoot, R., and McGuire, T. (2024). Indexing Analytics to Instances: How Integrating a Dashboard can Support Design Education. *arXiv preprint arXiv:2404.05417.*

Refereed Conference Papers

1. **Jain, A.**, Kerne, A., Lupfer, N., Britain, G., Perrine, A., Choe, Y., Keyser, J., and Huang, R. Recognizing Creative Visual Design: Multiscale Design Characteristics in Free-Form Web Curation Documents. In *Proceedings of the ACM Symposium on Document Engineering (DocEng) 2021*, 1-10 [33%]. **Best Paper Nomination, Best Student Paper Nomination.**

2. Kerne, A., Lupfer, N., Linder, R., Qu, Y., Valdez, A., **Jain, A.**, Keith, K., Carrasco, M., Vanegas, J., Billingsley, A. Free-form Web Curation: Strategies for Creative Engagement with Prior Work. In *Proceedings of the ACM Conference on Creativity & Cognition (C&C) 2017*, 380-392 [29%].

3. Sharma, H. N., Toups, Z. O., Dolgov, I., Kerne, A., **Jain, A.** Evaluating Display Modalities using a Mixed Reality Game. In *Proceedings of the ACM Annual Symposium on Computer-Human Interaction in Play (CHI PLAY) 2016*, 65-77 [29%].

4. **Jain, A.**, Lupfer, N., Qu, Y., Linder, R., Kerne, A., Smith, S. M. Evaluating TweetBubble with Ideation Metrics of Exploratory Browsing. In *Proceedings of the ACM Conference on Creativity and Cognition (C&C) 2015*, 178-187 [28%]. **Best Paper Honorable Mention - Top 2%**.

5. Wilkins, J., Järvi, J., **Jain, A.**, Kerne, A., Kejriwal, G., Gumudavelly, V. EvolutionWorks: Towards Improved Visualization of Citation Networks. In *Proceedings of the IFIP Conference on Computer-Human Interaction (INTERACT) 2015*, 213-230 [29.9%].

6. Qu, Y., Kerne, A., Lupfer, N., Linder, R., **Jain, A.** Metadata Type System: Integrate Presentation, Data Models and Extraction to Enable Exploratory Browsing Interfaces. In *Proceedings of the ACM Engineering Interactive Computing Systems (EICS) 2014*, 107-116 [18%].

7. Fei, S., Webb, A. M., Kerne, A., Qu, Y., and **Jain, A.** Peripheral Array of Tangible NFC Tags: Positioning Portals for Embodied Trans-Surface Interaction. In *Proceedings of the ACM Conference on Interactive Tabletops and Surfaces (ITS) 2013*, 33-36 [29%].

8. **Jain, A.** and Singh, S. Modified Programming Language Framework for IVRS Accessibility of Graphical User Interfaces. U-Media, pp.163-167, In *Proceedings of the IEEE Conference on Ubi-Media Computing (U-Media) 2011*, 163-167 [34%].

Refereed Workshops and Extended Abstracts

1. Britain, G., **Jain, A.**, Lupfer, N., Kerne, A., Perrine, A., Seo, J., Sungkajun, A. Design is (A)live: An Environment Integrating Ideation and Assessment, In *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems (CHI Late-Breaking Work) 2020*, 1-8 [41.8%].

2. **Jain, A.** Measuring Creativity: Multi-Scale Visual and Conceptual Design Analysis. In *Proceedings of the ACM Conference on Creativity & Cognition (C&C) 2017*, Graduate Student Symposium, 490-495.

3. **Jain, A.**, Kasiviswanathan, G., and Huang, R. Towards Accurate Event Detection in Social Media: A Weakly Supervised Approach for Learning Implicit Event Indicators. In *Proceedings of the Computational Linguistics (COLING) Workshop on Noisy User-Generated Text (WNUT) 2016*, 70-77.

4. Sharma, H. N., Toups, Z. O., **Jain, A.**, Kerne, A. Designing to Split Attention in a Mixed Reality Game. In *Proceedings of the ACM Annual Symposium on Computer-Human Interaction in Play (CHI PLAY) 2015*, 691-696.

5. Fei, S., Kerne, A., **Jain, A.**, Webb, A. M., and Qu, Y. Positioning portals with peripheral NFC tags to embody trans-surface interaction. In *Proceedings of the ACM Conference on Interactive Tabletops and Surfaces (ITS) 2013*, 317-320.

Presentations

- **Cognitive Audiences: Powering the Cookieless Future** Jan 2024

  Experian Data Scientists and Business Development Leads

- **Recognizing Creative Visual Design: Multiscale Design Characteristics in Free-Form Web Curation Documents** Aug 2021

  DocEng'21: Document Engineering

- **LiveMâché: Ideation on the Web** Sep 2020

  Georgia Tech ME 6102: Designing Open Engineering Systems

- **Measuring Creativity: Multi-Scale Visual and Conceptual Design Analysis** Jun 2017

C&C'17: Creativity and Cognition (Graduate Student Symposium)

- **Towards Accurate Event Detection in Social Media** Dec 2016
  COLING'17: Computational Linguistics
- **Evaluating TweetBubble with Ideation Metrics of Exploratory Browsing** Jun 2015
  C&C'15: Creativity and Cognition
- **Programming Language Framework for IVRS Accessibility of Graphical User Interfaces** Jul 2011
  UMEDIA'11: Ubi-Media Computing

Skills

- **Programming Languages:** C, C++, Java, Python, Scala, R
- **Web Programming:** HTML, JavaScript, React, REST, Django, Node.js
- **Big Data Technologies:** Spark, Kafka, Druid, Airflow
- **Machine Learning Libraries:** Scikit-learn, TensorFlow, Keras
- **Visualization Libraries:** D3.js, Three.js, Gephi
- **Research Methods** : Interviews, Surveys, Observations, Workshops, Grounded Theory, Hypothesis Testing

Teaching

- **Instructor of Record**, Dept. of Computer Science and Engineering, Texas A&M Spring 2021
  CSCE 121 Introduction to Program Design and Concepts (C++)
- **Teaching Assistant**, Dept. of Computer Science and Engineering, Texas A&M Spring 2015–Fall 2020
  CSCE 655 Human-Centered Computing
  CSCE 482 Senior Capstone Design
  CSCE 444 Structures of Interactive Information
  CSCE 420 Artificial Intelligence
  CSCE 315 Programming Studio
  CSCE 206 Structured Programming (C++)
  CSCE 121 Introduction to Program Design and Concepts (C++)

Mentoring

- **Industry Mentoring**, Audigent, Amobee, and Samsung 2009–2011, 2022–Present
  Mentor software, data, and full-stack engineers on various aspects of system development, including ideation, architectural design, coding, debugging, evaluation, documentation, and presentation.
- **Gabriel Britain**, Undergraduate Student in Computer Science, Texas A&M Fall 2019–Spring 2020
  Research: Design analytics dashboards and their integration with a multiscale design environment.
- **Hannah Fowler**, Undergraduate Student in Computer Science, Texas A&M Spring 2018–Fall 2018
  Research: A grounded theory analysis of design instructors' teaching and assessment practices and needs.
- **Aaron Perrine**, Undergraduate Student in Computer Science, Texas A&M Spring 2018–Fall 2018
  Research: Design analytics dashboards and their integration with a multiscale design environment.
- **Alex Stacy**, Undergraduate Student in Computer Science, Texas A&M Fall 2016
  Research: BigSemantics-based wrappers for extracting and presenting information from social media.

Service

- **Reviewer** 2015–Present

  Recognition for Outstanding / Highly Useful Reviews at Multiple Venues

  ACM CHI 2024, 2022, 2021, 2020, 2019, 2017, 2016
  ACM DIS 2022, 2021, 2020, 2019, 2018, 2016
  ACM C&C 2024, 2021, 2019, 2015
  ACM CHI PLAY 2024, 2019, 2018, 2017
  ACM CSCW 2022, 2020, 2018
  ACM ISWC 2023
  ACM ISS 2023
  ACM ICMI 2021
  CogSci 2021, 2019
  EAI MobiHealth 2020

- **Associate Chair** 2021

  ACM Creativity & Cognition

- **Judge, Student Research Week** 2021

  Texas A&M University

- **Registration Chair** 2019

  ACM Creativity & Cognition

- **Student Volunteer** 2012

  Design Computing and Cognition

References

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