

## EDUCATION

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### Texas A&M University

Ph.D. in Computer Science

*Co-Advisors:* Dr. Andruid Kerne and Dr. Ruihong Huang

*Thesis:* How to Support Situated Design Education through AI-Based Analytics

College Station, USA

2015–2021

### Texas A&M University

M.S. in Computer Science

*Advisor:* Dr. Andruid Kerne

*Thesis:* TweetBubble: A Twitter Extension Stimulates Exploratory Browsing

College Station, USA

2011–2014

### Delhi Technological University

B.E. in Information Technology

Delhi, India

2003–2007

## INDUSTRY EXPERIENCE

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### Full-Time

#### Audigent

Research and Engineering, Data Analytics

New York, USA

Mar 2022–Present

- Help drive executive strategy by contributing data architecture and delivery processes, conceptualizing and developing them in collaboration with stakeholders across business units.
- Architect, implement, and maintain complex data pipelines that drive a working, profitable adtech stack.
- Research, prototype, and recommend new technologies and frameworks for advancing data pipeline operations.
- Mentor junior engineers in designing and implementing automation, optimization, and analysis processes.

#### Amobee

Research and Engineering, Data Analytics

Los Angeles, USA

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.
- Investigated machine learning models to optimize data pipeline performance, following extraction of novel insights through exploratory data analysis.
- Led design and development, and mentored junior engineers, on cross-channel and caching projects.

#### Samsung

Engineering and Commercialization, Media Platform

Noida, India and Suwon, S. Korea

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.
- Developed, ported, and optimized 2D Graphics module of Java Virtual Machine.
- Investigated approaches for memory management in Java Virtual Machine.
- Developed notebook apps focused on remote access and network management.

### Internship

#### Centrum Wiskunde & Informatica

Research and Engineering, Interactive Systems

*Mentors:* Dr. Pablo Cesar and Dr. Abdallah El Ali

Amsterdam, Netherlands

Summer 2018

- 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

Research and Engineering, Marketing Cloud

Summer 2017

*Mentor:* Dr. Eunye 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

Engineering, Android Search

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

Engineering, Web Semantics

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

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- **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 an 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.

## SKILLS

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- **Programming Languages:** C, C++, Java, Python, Scala, R
- **Web Programming:** HTML, JavaScript, React, REST, Django, Node.js
- **Big Data Technologies:** HDFS, 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

## AWARDS & ACHIEVEMENTS

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- **Best Paper Nomination** at ACM Document Engineering 2021
- **Best Student Paper Nomination** at ACM Document Engineering 2021
- **Best Teaching Assistant Nomination**, Dept. of Computer Science and Engineering, Texas A&M 2020–2021
- **Student Travel Grant**, College of Engineering, Texas A&M 2021
- **Best Teaching Assistant Nomination**, Dept. of Computer Science and Engineering, Texas A&M 2019–2020
- **Best Teaching Assistant Nomination**, Dept. of Computer Science and Engineering, Texas A&M 2018–2019
- **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 Attitude Award** at Samsung 2008
- **Six Sigma Green Belt** at Samsung 2008

## REFEREED CONFERENCE PAPERS

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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., Touns, 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

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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., Touns, 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

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- **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

## TEACHING

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- **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

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- **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

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- **Reviewer** 2015–2021  
ACM CHI 2022, 2021, 2020, 2019, 2017, 2016  
ACM DIS 2022, 2021, 2020, 2019, 2018, 2016  
ACM CSCW 2022, 2020, 2018  
ACM C&C 2021, 2019, 2015  
ACM CHI PLAY 2019, 2018, 2017  
ACM ICMI 2021  
CogSci 2021, 2019  
EAI MobiHealth 2020  
Psychonomic Bulletin 2019
- **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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### Dr. Andruid Kerne

Professor  
Department of Computer Science and Engineering  
Texas A&M University  
✉ andruid@ecologylab.net

### Dr. Steven M. Smith

Professor  
Department of Psychology  
Texas A&M University  
✉ stevesmith@tamu.edu

### Dr. Ruihong Huang

Assistant Professor  
Department of Computer Science and Engineering  
Texas A&M University  
✉ huangrh@cse.tamu.edu

### Dr. Jinsil Seo

Associate Professor  
Department of Visualization  
Texas A&M University  
✉ hwaryoung@tamu.edu