SASHA AZAD

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EDUCATION

Ph.D. COMPUTER SCIENCE — **Aug '17 - Current**
North Carolina State University

M.S. COMPUTER SCIENCE — **May 2017**
Georgia Institute of Technology

Specialisation*:** Interactive Intelligence. ***Relevant Courses: Artificial Intelligence, AI Storytelling in Virtual Worlds, Augmented Reality Seminar, Knowledge Based AI, Game AI, Computational Creativity, Information Visualisation, Interactive Narrative, Mobile Apps & Services, Video Game Design.

B.E. COMPUTER ENGINEERING — **May 2011**
University of Mumbai — ***First Class with Distinction***

Electives: Artificial Intelligence & Soft Computing. ***Relevant Courses:*** Artificial Intelligence, Soft Computing, Data Structures & Files, Discreet Structures & Graph Theory, Analysis of Algorithms & Design, Data Warehouse & Mining, Theory of Computer Science, Computer Graphics, Advanced Database Management Systems.

WORK EXPERIENCE

RESEARCH LAB ASSOCIATE: Narrative Intelligence Group — **Sep '16 - current**
Disney Research, Pittsburgh

Advisor: Dr. Albert "Boyang" Li **Description:** Research into the creation and scheduling of an interactive multiplayer narrative in a mixed/augmented reality world. We tackle the largely overlooked problem of temporal uncertainty with scheduling the narrative in the real world. [Paper: C1]

GRADUATE RESEARCH ASSISTANT: Campus APIs & Mobility Group — **Jan '15 - May '16**
Research Networks & Operations Center, Georgia Institute of Technology

Advisor: Dr. Russ Clark & Dr. Matt Sanders. **Description:** Worked with campus research groups to open data, facilitate student innovation, and develop new modes of interaction. Worked with student groups harnessing the APIs created from conception and design to entrepreneurial launches of their project. Frequently lead workshops on web and API development.

ENTREPRENEURIAL LEAD: Design & Intelligence Lab — **May '15 - Dec '15**
National Science Foundation (NSF) iCorps Grant Recipient

Principal Investigator: Dr. Ashok Goel & Harold Solomon. **Description:** R&D for a knowledge extraction tool that is capable of extracting deep understanding from text to improve the precision, relevance and fertility of retrieved knowledge using direct matching & analogical reasoning. [Paper: C4]

CONSULTANT: Global Mobility Group — **Aug '12 - Jun '14**
Capgemini India Pvt. Ltd. | Software Engineer('12), Senior Software Engineer('13), Consultant('13)

Manager: Ramakant Satam. **Description:** Developed several native, web and hybrid mobile applications for iOS & Android devices. Designed an application that allowed for consumer & enterprise clients to access visualisations of various enterprise data via mobile applications to enable cross-domain collaboration.

APPLICATION ANALYST: Global Mobility Group — **Jun '11 - Aug '12**
Bayer Business Services | Software Engineer('11), Application Analyst ('12)

Manager: Ramakant Satam. **Description:** Initiated the first mobile development team in Bayer. Developed and deployed interactive Enterprise & Consumer mobile applications. Worked primarily on Sencha Touch, Objective C, Augmented Reality.

PUBLICATIONS

PEER REVIEWED PUBLICATIONS

C1: Sasha Azad, Jingyang Xu, Haining Yu and Boyang Li. Scheduling Live Interactive Narratives with Mixed-Integer Linear Programming. The 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE). Snowbird, Utah. 2017.

C2: Sasha Azad, Carl Saldanha, Cheng Hann Gan, Mark O. Riedl "Artificial Intelligence in Mixed Reality Games." *Experimental AI in Games Workshop, Twelfth Artificial Intelligence and Interactive Digital Entertainment Conference*. 2016.

C3: Sasha Azad, Carl Saldanha, Cheng Hann Gan, Mark O. Riedl, "Procedural Level Generation for Augmented Reality Games." *Twelfth Artificial Intelligence and Interactive Digital Entertainment Conference*. 2016. (Short Paper)

C4: Rugaber S, Goswami V, Bhati S, Spiliopoulou E, **Azad S,** Goel A, "Knowledge Extraction and Annotation for Cross-Domain Textual Case Based Reasoning in Biologically Inspired Design" International Conference On Case-Based Reasoning (ICCBR), 2016.

POSTER PRESENTATIONS

P1: Spencer Rugaber, **Sasha Azad,** Shruti Bhati, Vedanuj Goswami, Ashok Goel, "Interactive Biologically Inspired Design." Presented at *Graphics, Visualization and Usability Demo, Georgia Institute of Technology. 2016.*

P2: Sasha Azad, Shanu Salunke, Claire Bergman, Timothy Storm, "Creating a Player-Centric Dynamic Game AI." Presented at the Artificial Intelligence Poster Demo, Georgia Institute of Technology. 2014

SKILLS

Programming	Python (Proficient), HTML5/Javascript (Proficient), SQLite (Proficient), Java, C++, Objective C, MATLAB
Technologies	Django (Proficient), Sencha Touch (Proficient), D3, LATEX, iOS, Android, Layar, Cordova
Design & Prototyping	Wireframes, Omnigraffle, Keynote, Storyboards

HIGHLIGHTED PROJECTS

NARRATIVE & ARTIFICIAL INTELLIGENCE DOMAIN

Dynamic Opinion Propagation in Virtual Characters: Principles of Expressive Machines (POEM) Lab **Sep '17 - Jun '18**

Advisor: Dr. Chris Martens. **Description:** Investigating the problem of group formations, and group opinion and belief modeling for a society of virtual characters that are able to form, discuss and exchange their views on topics. Considers the effects of real (eg., book clubs, classmates, etc) and virtual (eg. news and media sources, etc) groups on NPC opinions and behaviours.

Scheduling Narratives in Mixed Reality: Disney Research, Pittsburgh **Sep '16 - May '17**

Advisor: Dr. Boyang Li. **Description:** Investigating the problem of scheduling of interactive narratives in the mixed reality domain. Considers temporal availability of real world resources, and uncertainty in player action durations to inform the narrative generation.

Cognopsi - A Knowledge Extraction Tool: Design Intelligence Lab **Aug '15 - Jan '16**

Research and development on a knowledge extraction tool that extracts deep understanding from text to improve the precision, relevance and fertility of retrieved responses by direct matching & analogical reasoning. (C4)

Multiplayer AI Narrative & Quest Generator (AI Storytelling in Virtual Worlds course): **Sep '14 - Dec '14**

Developed a Python AI Simulator that generated a murder mystery (with simulated motives) given a set of characters. The AI Game Master controlled when to divulge clues & plot-lines to players. A quest generator was created to improve gameplay.

Jill - An Intelligent Research Assistant (Computational Creativity course): **Feb '15 - May '15**

Developed an interactive concept search engine using IBM Watson and Python that could comb through scientific papers and journals to aid the literature review process. The engine also tracked the cognitive research thought process of the user.

Intelligent Self Learning Conversational Agent (Bachelor's Research Project): **Aug '10 - May '11**

Developed an AI Chatterbot that attempted to beat the Turing Test and expanded it's knowledge base from user interaction and the internet using case-based reasoning and semantic frames.

ENTERTAINMENT INTELLIGENCE DOMAIN

Augmented Reality Super Mario Bros *(Masters Project)***:** Entertainment Intelligence Lab **Sep '15 - May '16**

Advisor: Dr. Mark Riedl. **Description:** Designed and developed an augmented reality interactive experience that responds to real time changes in the user's environment. The interaction scans the room using a Kinect and performs surface detection, using a combination of Game AI, Player Modeling and PCG to dynamically generate levels for the user. (C2, C3)

Characterizing the Marvel Comic Universe (Information Visualization course): **Sep '15 - Dec '15**

Designed a interactive visualization in D3 for Marvel comic book enthusiasts and aggregate media analysts to explore the vast variety of Marvel characters, their relationships with one another and to their universe. Developed a relational database and REST APIs in Django. Was selected to be included in the Georgia Tech 2015 College of Computing Gift Guide.

Creation of a Player-Centric Dynamic Game AI (Artificial Intelligence course): **Mar '14 - May '14**

Developed an AI gameplay agent to play the Isolation board game on an 8×8 grid. The agent used player modeling and clustering to judge the personality type and skill level of the human player and make moves to match the player's characterization. Implemented a Random Walk Minimax with Alpha Beta. (P2)

INTERACTION DOMAIN

Unlock the Box (Independent - Civic Engagement Domain): **Oct '15 - Present**

Developed an API to improve voter turnout and encourage civic participation. Targeted the rising American electorate who comprise of 62% of the voting age population in Georgia yet only 53% of registered voters. Currently tying up with New Georgia Project's Director to implement the Voting API for the State of Georgia.

Semantic Rule Based IFC Parser (Independent - Architecture Domain): **Aug '14 - Sep '14**

Developed an algorithm that allowed an architect to describe a semantic knowledge based rule set to minimize the slab pieces generated during slab segmentation. The algorithm adhered to user preferences and limitations outputting an enriched IFC file.

Bayer Eco Commercial Building App (Bayer - Mobile Information Visualization): **Oct '11 - Jan '12**

Developed backend in Java/JSP to collect real-time data from an energy efficient building. Created interactive charts to visualize the data on an iPad interface developed in Sencha Touch. The application won many accolades at the Global Mobility Conference in Leverkusen.

INVITED TALKS

GEORGIA GAME DEVELOPER ASSOCIATION (GGDA)

Presented: Mixed Reality and the Real World (Microsoft Hololens Introductory Panel) **May 2016**

COMPUTER SOCIETY OF INDIA, MUMBAI

Presented: The Entertainment Intelligence Domain - A Computational Narrative Story **May 2015**

FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING, UNIVERSITY OF MUMBAI

Panel: Discussed the potential of AI in Narratives and Games as a research field in India **June 2015**

IN THE NEWS

Characterizing the Marvel Comic Universe project featured on Georgia Tech's GVU website **2016**

Characterizing the Marvel Comic Universe project featured on Georgia Tech's 2015 Holiday Gift Guide **2016**

NSF I-Corps customer discovery results featured on the Georgia Tech College of Computing website **2015**

LEADERSHIP EXPERIENCE

NORTH CAROLINA STATE UNIVERSITY

PhD Recruitment Coordinator, Computer Science **2017-2018**

GEORGIA INSTITUTE OF TECHNOLOGY

Executive Legislature, Graduate Student Government Association **2015-2016**

Senator, College of Computing, Graduate Student Government Association **2014-2016**

Team Leader, CRIDC (Career, Research & Innovation Development Conference) Committee **2014**

AT THE WORKPLACE

Chief Editor, Capgemini monthly Newsletter, BayCap Beacon **2012-2014**

Delivered the keynote presentation at the One Year Capgemini-Bayer merger **2014**

UNDERGRADUATE LEVEL

Elected Chairperson, Computer Society of India, Fr. CRCE **2009-2011**

Editor-in-Chief, One of 5 students chosen nation-wide as Editor for Computer Society of India Magazine **2010**

Chair, Organising Committee, for Computer Society of India, National Convention 2 years running **2010-2011**

OUTREACH AND MENTORING

NORTH CAROLINA STATE UNIVERSITY

Mentoring, 3 undergraduate CS students (1 past, 2 current) at NC State University in their research in the intelligent narrative field.

Volunteered, SPARCS (Students in Programming, Robotics and Computer Science) is a middle school outreach program where we teach students in the Wake County area different computer science concepts. Lessons include game design using Kodu, binary, algorithms, web design and development, LEGO Mindstorms, and interactive story design using Twine.

GEORGIA INSTITUTE OF TECHNOLOGY

Mentored, several MS student teams developing mobile applications in the healthcare, smart home, transportation domain

Volunteer, Fulton County Animal Services

Volunteer, Fulton County Library

INDIA

Volunteer, P.A.W.S. Mumbai

Volunteer, Weekly at Dr. Sarala's Special Care Unit for Senior Citizens, Mumbai.