Anurag Sarkar

Contact Information

Northeastern University
Khoury College of Computer Sciences
440 Huntington Avenue
Boston, MA 02115

Office: 466 West Village H
Email: sarkar.an@northeastern.edu
https://riffsircar.github.io

Education

Northeastern University
Ph.D. (in progress), Computer Science, 2016-present
Adviser: Seth Cooper

MS, Computer Science, 2016-2018.
GPA: 3.8/4.0

St. Xavier's College (autonomous), Calcutta
M.Sc., Computer Science, 2014-2016.
GPA: 9.11/10

NSHM College of Management and Technology (under West Bengal University of Technology)
Bachelor of Computer Applications (BCA), 2011-2014.
GPA: 9.06/10

Research Experience

Northeastern University
Graduate Research Assistant, Playable Innovative Technologies (PLAIT) Lab, 2016-present

- Applying machine learning for game design and procedural content generation in games
- Player skill modeling and dynamic difficulty adjustment in human computation games

Publications

Anurag Sarkar, Adam Summerville, Sam Snodgrass, Gerard Bentley, Joseph Osborn. Exploring Level Blending across Platformers via Paths and Affordances, *AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, 2020

Zhihan Yang, **Anurag Sarkar**, Seth Cooper. Game Level Clustering and Generation using Gaussian Mixture VAEs, *AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, 2020

Anurag Sarkar, Seth Cooper. Evaluating and Comparing Skill Chains and Rating Systems for Dynamic Difficulty Adjustment, *AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, 2020

Anurag Sarkar, Seth Cooper. Towards Game Design via Creative Machine Learning (GDCML), *IEEE Conference on Games (CoG)*, 2020 ***(Best Paper Nomination)***

Anurag Sarkar, Seth Cooper. Sequential Segment-based Level Generation and Blending using Variational Autoencoders, *FDG Workshop on Procedural Content Generation in Games*, 2020

Sam Snodgrass, **Anurag Sarkar**. Multi-Domain Level Generation and Blending with Sketches using Example-Driven BSP and Variational Autoencoders, *Foundations of Digital Games (FDG)*, 2020

Anurag Sarkar. Game Design using Creative AI, *NeurIPS Workshop on Machine Learning and Creativity*, 2019

Anurag Sarkar, Seth Cooper. Using a Disjoint Skill Model for Game and Task Difficulty in Human Computation Games, *Annual Symposium on Computer-Human Interaction in Play (CHI Play)*, 2019

Anurag Sarkar, Zhihan Yang, Seth Cooper. Controllable Level Blending between Games using Variational Autoencoders, *AIIDE Workshop on Experimental AI in Games (EXAG)*, 2019

Anurag Sarkar, Seth Cooper. Using Rating Arrays to Estimate Score Distributions for Player-versus-Level Matchmaking, *Foundations of Digital Games (FDG)*, 2019

Anurag Sarkar, Seth Cooper. Inferring and Comparing Game Difficulty Curves using Player-versus-Level Match Data, *IEEE Conference on Games (CoG)*, 2019

Anurag Sarkar, Seth Cooper. Transforming Game Difficulty Curves using Function Composition, *SIGCHI Conference on Human Factors in Computing Systems (CHI)*, 2019

Anurag Sarkar, Seth Cooper. Blending Levels from Different Games using LSTMs, *AIIDE Workshop on Experimental AI in Games (EXAG)*, 2018

Anurag Sarkar, Varun Sriram, Riddhi Padte, Jeffrey Cao, Seth Cooper. Desire Path-inspired Procedural Placement of Coins in a Platformer Game, *AIIDE Workshop on Experimental AI in Games (EXAG)*, 2018

Anurag Sarkar, Seth Cooper. Comparing Paid and Volunteer Recruitment in Human Computation Games, *Foundations of Digital Games (FDG)*, 2018

Anurag Sarkar, Seth Cooper. Meet your Match Rating: Providing Skill Information and Choice in Player-versus-Level Matchmaking, *Foundations of Digital Games (FDG)*, 2018

Anurag Sarkar, Seth Cooper. Level Difficulty and Player Skill Prediction in Human Computation Games, *AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, 2017

Michael Williams, **Anurag Sarkar**, Seth Cooper. Predicting Human Computation Game Scores with Player Rating Systems, *International Conference on Entertainment Computing (ICEC)*, 2017

Anurag Sarkar, Michael Williams, Sebastian Deterding, Seth Cooper. Engagement Effects of Player Rating System-based Matchmaking for Level Ordering in Human Computation Games, *Foundations of Digital Games (FDG)*, 2017 ***(Best Paper Honorable Mention)***

Anurag Sarkar, Debabrata Datta. A Frequency Based Approach to Multi-Class Text Classification, *International Journal of Information Technology and Computer Science, Vol.* 9*, No.* 5, 2017

Anurag Sarkar, Saptarshi Chatterjee, Writayan Das, Debabrata Datta. Text Classification using Support Vector Machine, *International Journal of Engineering Science Invention, Vol.* 4*, No.* 11, 2015

Anal Acharya, Devadatta Sinha, **Anurag Sarkar**, Dibyabiva Seth, Kaustav Basu. A Mixed Approach to Smart Group Formation in Collaborative Learning, *Smart Computing Review, Vol.* 5*, No.* 5, 2015

Anurag Sarkar, Dibyabiva Seth, Kaustav Basu, Anal Acharya. A New Approach to Collaborative Group Formation, *International Journal of Computer Applications, Vol.* 128*, No.* 3, 2015

Abir Ghosh, **Anurag Sarkar**, Amira Ashour, Dana Balas-Timar, Nilanjan Dey, Valentina Balas. Grid Color Moment Features in Glaucoma Classification, *International Journal of Advanced Computer Science and Applications, Vol.* 6*, No.* 9, 2015

Anurag Sarkar, Asoke Nath. MapReduce: A Comprehensive Study on Applications, Scope and Challenges, *International Journal of Advanced Research in Computer Science and Management Studies, Vol.* 3*, No.* 7, 2015

Anurag Sarkar, Shalabh Agarwal, Asoke Nath. Li-fi Technology: Data Transmission through Visible Light, *International Journal of Advanced Research in Computer Science and Management Studies, Vol.* 3*, No.* 6, 2015

Anurag Sarkar, Abir Ghosh, Asoke Nath. Impacts of Social Networks: A Comprehensive Study on Positive and Negative Effects on Different Age Groups in a Society, *International Journal of Advanced Research in Computer Science and Management Studies, Vol.* 3*, No.* 5, 2015

Peer Reviewing

IEEE Transactions on Games (TOG), 2020
Foundations of Digital Games (FDG), Late Breaking Papers Track, 2020
Foundations of Digital Games (FDG), Game Analytics and Visualization Track, 2020
AIIDE Workshop on Experimental AI in Games (EXAG), 2019
Annual Symposium on Computer-Human Interaction in Play (CHI Play), 2019
FDG Workshop on Procedural Content Generation (PCG), 2019
Foundations of Digital Games (FDG), Posters and Demos Track, 2019
Foundations of Digital Games (FDG), Applied Games and Gameful Design Track, 2019
Foundations of Digital Games (FDG), Player Modeling and Visualization Track, 2018

Honors and Awards

Best Paper Nomination, IEEE Conference on Games (CoG) 2020
IEEE Computational Intelligence Society (CIS) Grant, IEEE Conference on Games (CoG) 2020
PhD Network Travel Grant, Northeastern University, 2019

IEEE Computational Intelligence Society (CIS) Travel Grant, IEEE Conference on Games (CoG) 2019
Game Narrative Review Gold Award, Game Developers Conference (GDC) 2018
Best Paper Honorable Mention, Foundations of Digital Games (FDG) 2017
Graduate Fellow, Northeastern University, 2016
Father Jacques de Bonhome S.J. Memorial Gold Award, M.Sc. Computer Science Class of 2016 Valedictorian, St. Xavier's College, 2016
All-State Rank 7th (out of 2261), West Bengal Joint Entrance Exam for Computer Applications, 2014
NSHM Medal of Merit, BCA Class of 2014 Valedictorian, NSHM College of Management & Technology, 2014