Curriculum Vitae

Colan Biemer

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Education

October 2025, Northeastern University, Ph.D., Computer Science

June 2021, Northeastern University, M.S., Computer Science

June 2017, Drexel University, B.S., major Computer Science with minor in Math

Employment

August 2017 - June 2019, Applications Programmer, Brain Game Center

April 2016 - September 2016, Information Technology Research Center Co-op, BMW

April 2015 - September 2015, R&D Innovations Team Development Co-op, iPipeline

Teaching

Fall 2025, Northeastern, Programming in C++, Teaching Assistant

Spring 2024, Northeastern, Game Engines, Teaching Assistant

Summer 2023, Northeastern, Graphics, Teaching Assistant

Fall 2023, Northeastern, Programming in C++, Teaching Assistant

Summer 2022, Northeastern, Programming in C++, Teaching Assistant

Spring 2022, Northeastern, Game Engines, Teaching Assistant

Fall 2022, Northeastern, Programming in C++, Teaching Assistant

Summer 2021, Northeastern, Programming in C++, Teaching Assistant

Spring 2022, Northeastern, Game Engines, Teaching Assistant

Fall 2021, Northeastern, Programming in C++, Teaching Assistant

Fall 2020, Northeastern, Programming in C++, Teaching Assistant

Winter 2016, Drexel University, Computer Programming Fundamentals, Teaching Assistant

Winter 2016, Drexel University, Introduction to Computing, Teaching Assistant

Fall 2015, Drexel University, Introduction to Computer Science, Teaching Assistant

Publications

Biemer, Colan F., and Seth Cooper. "Evaluating the impact of MDP-based level assembly on player experience." In EXAG@ AIIDE. 2025.

Liu, Ling, **Colan F. Biemer**, Günter Wallner and Seth Cooper. "Voxel-Based Spatio-Temporal Visualization of Gameplay Traces with Anomaly Detection." In EXAG@ AIIDE. 2025.

Biemer, Colan F., and Seth Cooper. "Solution Path Heuristics for Predicting Difficulty and Enjoyment Ratings of Roguelike Level Segments." In Proceedings of the 19th International Conference on the Foundations of Digital Games, pp. 1-8. 2024.

Biemer, Colan F. "Dynamic difficulty adjustment via procedural level generation guided by a Markov decision process for platformers and roguelikes." In Proceedings of the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment, vol. 19, no. 1, pp. 436-439. 2023.

Biemer, Colan F., and Seth Cooper. "Level assembly as a markov decision process." In EXAG@ AIIDE. 2023.

Biemer, Colan F., and Seth Cooper. "On linking level segments." In 2022 IEEE Conference on Games (CoG), pp. 199-205. IEEE, 2022.[1]

Biemer, Colan F., Alejandro Hervella, and Seth Cooper. "Gram-elites: N-gram based quality-diversity search." In Proceedings of the 16th International Conference on the Foundations of Digital Games, pp. 1-6. 2021.

Villareale, Jennifer, **Colan F. Biemer**, Magy Seif El-Nasr, and Jichen Zhu. "Reflection in game-based learning: A survey of programming games." In Proceedings of the 15th International Conference on the Foundations of Digital Games, pp. 1-9. 2020.

Program Committee and Reviewing

2023-2025, Artificial Intelligence and Interactive Digital Entertainment (AAIDE), Program Commitee

2023-2025, Experimental AI in Games Workshop at AIIDE, Program Commitee

2025, Artifact Evaluation at AIIDE, Program Committee

2021-Present, IEEE Transactions on Games, Reviewer

2024, ACM Collective Intelligence, Reviewer

2020, Foundation of Digital Games, Reviewer

Selected Projects

2025-Present, [Youtube Channel](...)

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[1]Nominated for best paper.

Started posting educational YouTube videos. Videos up to date have been on programming games and simulations in `C++`. For example, there is a 31-part series on creating a terminal-based version of *Sokoban*. The goal of this work is to demonstrate one approach to programming that encourages fewer dependencies and greater control over the program's execution. The next iteration of videos will shift away from `C++` and instead focus on programming games and tools in `C99`.

2025-Present, adjust.h

Single-header C99 library enabling runtime parameter modification without recompilation, streamlining game development and debugging workflows. Actively maintained with growing community on GitHub.

2024-2025, *Recformer*

Created a webplayable playable platformer to demonstrate how MDP-based level assembly works.

2024-2025, *DungeonGrams*

Created a webplayable version of *DungeonGrams* for studies (including MDP-based level assembly) and general enjoyment of the game.

2022, *Rock-Paper-Scissors*

Created a webplayable version of *Rock-Paper-Scissors* to demonstrate that a backoff n-gram is extremely effective in predicting what a player will select.

2017-2019, *PolyRules!*

A sorting game where the rules change as players play to help players with context switching that was released on the IOS App Store and the Google Play App Store. Additionally, it has been used in several studies.

2013-2014, *Tetris* on a Sky Scraper

Developed a multiplayer version of *Tetris* with Frank Lee, which was played on two sides of the Cira Centre, a skyscraper in Philadelphia. The work won the Guinness world record for largest architectural video game.