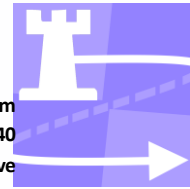


Drew Hicks

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Objective I'm a **game developer and researcher**, focused on **analyzing and visualizing player behavior**, using gameplay data and user-authored content to **model player knowledge and skill**, and constructing **simple, effective visualizations** to bring this data to the surface. I want to help build better, smarter games -- **games that learn with their players**.

Skills and Experience

Programming SQL, HiveQL, Python, R, C#, JavaScript, Java, C++, PHP, Objective C, HTML5	Visualization + Analysis Tableau, ProtoVis, RStudio, SPSS, MATLAB, Network/Graph Analysis, Statistical Analysis	User Research A/B Testing, Survey Design, Quantitative Methods, IRB Protocol, Think-Aloud Protocol
Development Tools Visual Studio, MonoDevelop, Unity3D, Godot, Unreal Engine 5, Git, Spark, Hive, Eclipse, xCode	Machine Learning + NLP NLTK, Keras, Gensim, Sentiment Analysis, Topic Detection, Deep Learning, Word Embeddings	UX + Game Design Rapid Prototyping, Analog and Digital Game Design, Playtest Coordination, Data Collection

Previous Roles

Epic Games – Senior UX Data Researcher 2019 – 2023
I **designed and conducted surveys** comparing our audience's pop-culture preferences against an external panel **to inform partnership decisions** and **predict purchasing behavior**. I created and maintained **Tableau dashboards** to inform design and balance teams combining **player sentiment** from a post-match survey tool with **gameplay telemetry**. I designed a tool to present **open-ended survey responses** in a twitter-like timeline view, and associated the common terms and topics found in these responses with **player profiles** derived from match data.

IBM Watson Health – Cognitive Software Developer 2015 – 2019
I built, trained and evaluated **Machine Learning** and **Natural Language Processing** models using **NLTK, Keras, Spark** and **Gensim** among other tools. These models improved the performance of **Word2Vec**-based word embeddings on texts with **domain specific vocabulary** like uncommon medical terms. Along with my teammates, I was **awarded several patents** for novel techniques in this area.

Selected Projects

BOTS - Project Lead, Research Lead BOTS.GAME2LEARN.COM
I led a team of 5 to build a programming puzzle game using **Unity3D**. I designed and implemented gamified **level editors** to encourage specific design habits in **user-authored content** and designed a **recommender system** to present user-authored puzzles based on difficulty and conceptual content.

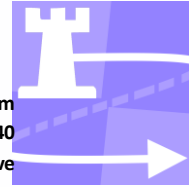
SNAG'EM - Researcher, Game Designer WWW.SNAGEMGAME.COM
I designed a **social networking game** for academic conferences and universities (ACM SIGCHI Conference, STARS Celebration, Spellman University, UNC Charlotte) and used **network clustering** to identify "social hub" players with high impact on overall **user behavior**.

Quantum Spectre - Data Scientist EDGEATTEC.COM/EDGE/GAMES/QUANTUM-SPECTRE
I used **R** to **analyze networks of player moves** within an educational game, and **cluster** similar strategies. I also developed **Tableau dashboards** to help **identify problem areas** where players struggled.

Discovery Detectives - Game Designer, Developer
I worked with **Discovery Place Science Museum** in Charlotte, NC to develop a "**digital layer**" game to increase interest and direct traffic to exhibits which lacked interactive elements. I conducted **on-site playtesting** using early builds as well as **rapid paper prototypes** to inform design of the final product.

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Awards and Honors

- National Science Foundation Graduate Research Fellow (\$42,000 ANNUALLY, 2011-2014)
- Graduate Assistantships in Areas of National Need – Fellow (\$20,000 ANNUALLY, 2009-2011)
- Pittsburgh Science and Learning Center - LearnLab Graduate (SUMMER 2010)
- Invited Lecturer - HAEF Program, Athens College, Greece (SUMMER 2012)
- Invited Speaker - Intercultural Outreach Programs, UNC Charlotte (MARCH 2012)
- Event Coordinator - Global Game Jam @ NCSU (JANUARY 2015)

Academic History

Ph.D. in Computer Science - NC State University (August 2012 – 2016)

Highlights: Designed and evaluated gamified level creation tools to improve the quality of user-authored levels. Mentored award-winning NSF-funded undergraduate research teams. Developed a system for constructing hint messages for unseen levels based on previous player behavior. Designed a system for collecting and filtering peer-authored instructions.

Awards + Service: Selected for the Graduate Research Fellowship sponsored by the National Science Foundation. Conducted outreach through STARS Alliance and SPARCS. Presented lectures and developed course materials for game design courses.

M.S. in Computer Science - UNC Charlotte (August 2009 - April 2012)

Highlights: Built Serious Games for clients including Discovery Place, Spellman College, and Duke Energy. Studied Data Visualization, Machine Learning, Cognitive Science, and Research Methods.

Awards + Service: Selected for the GAANN Fellowship. Conducted middle-school outreach through STARS Alliance. Developed lectures for Discrete Mathematics and Principles of Computer Science.

B.S. in Computer Science - Marietta College (August 2005 - April 2009)

Highlights: Developed a database system for the Sports Medicine department. Led the ACM Programming Contest team. Held leadership roles in ACM, Honors House, and Rainbow Alliance.

Selected Patents and Publications

- Brendan Bull, **Andrew Hicks**, Scott Robert Carrier, Dwi Sianto Mansjur. "Use of machine learning to characterize reference relationship applied over a citation graph." Patent No. 11144579 (Filed 2019, Granted 2022)
- Dwi Sianto Mansjur, Scott Robert Carrier, Brendan Bull, **Andrew Hicks**. "Generating a domain-specific phrasal dictionary." Patent No. 11328007 (Filed 2019, Granted 2021)
- Brendan Bull, Paul Lewis Felt, Andrew Hicks. "Identification of co-located artifacts in cognitively analyzed corpora." Patent No. 10971273 (Filed 2018, Granted 2021)
- **(DOCTORAL DISSERTATION) Drew Hicks**. 2016. "Design Tools and Data-Driven Methods to Facilitate Player Authoring in a Programming Puzzle Game."
- Michael Eagle, **Drew Hicks**, Barry Peddycord III and Tiffany Barnes. 2015. "Exploring Networks of Problem-Solving Interactions." In Proceedings of the Fifth International Conference on Learning Analytics And Knowledge (LAK '15).
- **(BEST PAPER NOMINEE) Drew Hicks**, Veronica Catete, Tiffany Barnes. 2014. "Part Of The Game: Changing Level Creation to Identify and Filter Low-Quality User Generated Levels." In Proceedings of the International Conference on the Foundations of Digital Games (FDG '14).
- Samantha L. Finkelstein, Eve Powell, **Drew Hicks**, Katelyn Doran, Sandhya Rani Charugulla, and Tiffany Barnes. 2010. "SNAG: using social networking games to increase student retention in computer science." In Proceedings of ITICSE '10).