ColorNet: Brand Color AI Solution (2020-002)

A real time AI solution that targets specified brand colors for color correction

Market Overview

Sports are one of the most prominent and profitable forms of entertainment in the United States; 102 million viewers tuned in to watch the Super Bowl this year, and 25.5 million watched the CFP National Championship. Additionally, everyone wants to represent their favorite teams; the sports apparel market is booming, valued at $167.7 billion in 2018, and projected to grow to $248.1 billion by 2026. However, when broadcasting games, brand owners, networks, and fans all face a similar problem with brand color consistency across platforms. Current color-correction solutions adjust the entire frame, which can negatively impact the color of everything else including skin tones and field conditions. To solve this problem, Clemson Researchers developed ColorNet, a novel software that uses artificial intelligence to identify colors important to a brand, such as team colors on a jersey, and correct them to the brand-correct color, in real time.

Technical Summary

Optimizing the display of brand colors on large-format video displays during live sporting events is a complex process that is usually handled manually by specially trained professionals. Color visualization on video displays is impacted by a variety of factors, including the video source, the screen display, and the ambient light at the location of the event. This is usually resolved by manually adjusting the amount of red, green, and blue (RGB) in the video, however, on big game days there can be up to 50 cameras making it difficult to maintain visual consistency and brand correct colors in real time across all feeds. This specialized AI solution targets only the specified brand colors, and adjusts those areas of each video frame across all camera inputs, creating a much more cohesive display.

Application
Color Correction, Artifical Intelligence, Neural Networks

Development Stage
Production level prototype, completed alpha and beta testing

Advantages
- The process is automated, circumventing human error when color correcting for brand colors
- The process functions in real time, minimizing the negative impact of lighting or weather changes on the display of brand colors
- The neural network is trained to identify brand colors off a small data set, conferring the ability to target specific colors and adjust pixel-by-pixel without shifting any other surrounding colors

App Type	Country	Serial No.	Patent No.	CURF Ref. No.	Inventors
Provisional	United States	62/907,277	NA	2020-002	Dr. Erica Walker Dr. Hudson Smith

About the Inventors

Dr. Erica Walker
Assistant Professor of Graphic Communications at Clemson University

Dr. Erica Walker is an assistant professor in the Department of Graphic Communications at Clemson University. She has a diverse background in visual communications, including feature film production, web design & development, and graphic design. Prior to joining Clemson, she co-founded a film production company, Galatia Films, where she produced a feature length documentary film and an educational television series for children. Her current research is diverse, including projects on the impact of partnering industry experts with academic instructors, artificial intelligence solutions to improve viewer experience, and an interdisciplinary approach to increase student's ability to produce scientific communications.

Dr. Hudson Smith
Research Associate of Analytical Systems and Applications at Clemson University

Dr. Hudson Smith currently leads the "Watson in the Watt" applied Artificial Intelligence (AI) program at the Watt Innovation Center with the mission of enabling novel and impactful applications of AI tools within the broader Clemson Community, and equipping students with the resources needed to succeed in the realm of Machine Learning and Intelligence. As part of this program, Hudson participates in more than a dozen projects education. Among these projects, the color correction project is a representation of how collaborating across disciplinary lines can lead to creative solutions to real-world problems.

For more information on this technology contact:

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