

Proceedings

of the International Colour Association Conference



AIC 2024 Midterm Meeting

Color Design,
Communication
Marketing

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AIC 2024 Midterm Meeting
Color Design, Communication and Marketing
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Book of Abstracts

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Conference Topics:

- Color in Branding and Marketing
- Color and Consumer Behavior
- Color in Design and Visual Communication (all forms of design)
- Color and Consumer Products
- Industrial Color Application (cosmetics, paints, textiles among others)
- Color in Interior Design and Architecture
- Color Semantics and Semiotics
- Color and Psychology
- Color and Physiology
- Color and Physics
- Colorimetry and Color Control and Color Order Systems
- Color Education
- Color in Art, Culture, and History
- Color in Games and Toys

Welcome to the AIC 2024 Midterm Meeting on Color Design, Communication, and Marketing



Dear researchers, artists, professionals, and enthusiasts of color in its many meanings, welcome to the AIC 2024 Midterm Meeting dedicated to the theme of “Color Design, Communication, and Marketing”. This year, the meeting is held in São Paulo, Brazil, in this beautiful country of a thousand colors, multi-ethnic and multi-cultural.

The conference is organized in a three-day scientific program and a pre-program day dedicated to two workshops: the first on “Watercolor Painting of Brazilian Plants and Landscapes” and the second on “Digital Color” Mixing. There will also be a workshop on “Brazilian Rainforest Natural Pigments” and Keynote Speakers from all around the world, Anat Lechner, Leatrice Eiseman and Petronio Bendito US, Patricia Fecci, Ciça Costa and Polar Design BR, Urangoo Samba GB, Larissa Noury FR, Ingrid Calvo Ivanovic CL.

The program will have the AIC Student Paper Awards, issued every two years at any AIC Midterm Meeting. Its goal is to encourage students to present their work at the AIC Midterm Meeting and support their interaction with the world color community. I wish to thank the Colour Group (GB) because, thanks to their sponsorship, we will also have the Robert W. G. Hunt International Poster Awards this year.

After the sad years of COVID-19, having an AIC conference exclusively in person is also lovely. The purpose of conferences is to exchange one’s research and experiences, talk about them, meet, interact during the breaks, appreciate the posters, and speak without a camera in front of us.

The work of giving the AIC a permanent home is not yet finished. Managing today a global association that carries out the activity of publisher of four diamond open access publications, the Journal of the AIC, the book series Proceedings of the International Colour Association, the Annual Review, and the Newsletter, as well as the management of personal data in compliance with the General Data Protection Regulation, involves a series of legal and administrative obligations. On Thursday, September 19th, there will be an Extraordinary Assembly of AIC Members to propose a few changes to the AIC statute to make it more aligned with Austrian and EU laws and add a new AIC award.

The AIC 2024 Midterm Meeting is a true international conference. I want to thank the Associação ProCor do Brasil that organizes it, the chairs Paula Csillag, Carolina Bustos Raffainer, Vien Cheung, and Ricardo Zagallo Camargo, the Escola Superior de Propaganda e Marketing (ESPM) that hosts the conference, and the sponsors Sherwin-Williams, Abrafati, Lukscolor, RAL, Studio Imagine, Canson, Sinteglas and Sitivesp.

It is thanks to the sponsors and the enormous volunteer work of ProCor and ESMP that it was possible to organize an AIC Midterm Meeting accessible to everyone with an early registration fee very accessible to young people, pensioners, and people who come from disadvantaged countries. For this, I am very grateful to ProCor and Paula Csillag because the science and culture of color must be accessible to everyone. And so it is to all of you, participants, here today that my greeting also goes: thank you for sending your papers and coming here in person.

Enjoy the AIC 2024 Midterm Meeting in São Paulo, Brazil.

The AIC President
Prof. Maurizio Rossi

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Conference Chairs' Preface

Welcome everybody to AIC 2024 Midterm Meeting!

What a wonderful moment to gather so many people that have one point in common: the passion for color! May we say that color chose us, and thus, here we are meeting, as a family of color!

The date of this conference was chosen specifically when Spring is beginning in Brazil, when flowers are blooming and the sun shining! Not a coincidence, this is also the period when we celebrate the Brazilian Day of Color with our national color association, Associação ProCor do Brasil.

The plan for this conference began in 2019, in Buenos Aires AIC EC Meeting. At first, ProCor was invited, but the invitation was declined since ProCor is an association composed of volunteers and we would not have any possibility of hosting it. But, when the invitation was amplified for a partnership with ESPM University, it started to be feasible. And now, here we are!

The conference received 119 abstract submissions from 26 regions. A total of 228 reviews were conducted by members of the Scientific Committee which comprises of over 60 color experts from around the world, who generously offered their valuable time as volunteers to support this critical task. Under the conference theme "Color Design, Communication and Marketing" the oral and poster presentations in the Technical Program are organized into 14 topics: Color in Branding and Marketing, Color and Consumer Behavior, Color in Design and Visual Communication (all forms of Design), Color and Consumer Products, Industrial Color Application (Cosmetics, Paints, Textiles among others), Color in Interior Design and Architecture, Color Semantics and Semiotics, Color and Psychology, Color and Physiology, Color and Physics, Colorimetry and Color Control and Color Order Systems, Color Education, Color in Art, Culture, and History, and Color in Games and Toys. The Technical Program also features a total of eight plenary lectures over three days and the AIC Study Group meetings on Tuesday evening. We hope you also enjoy our selection of workshops: Watercolor Painting of Brazilian Plants and Landscapes, Digital Color Mixing and Amazon Pigments.

We would like to thank ESPM University for the most precious partnership and feasibility of the event and thank each and every person from ESPM, among many, that helped us. We would like to thank our sponsors: Sherwin Williams, ABRAFATI, Lukscolor, RAL, Studio Imagine, Canson, Sinteglas, and SITIVESP. Many thanks to our supporters: ABA, CNPq, Paint Innovation, Pintar, and Visite São Paulo. Many thanks to everyone that helped voluntarily in the committees. All this synergy was very precious!

May we bring more color to the world!

Conference Chairs

Paula, Carolina, Vien and Ricardo

AIC 2024 Conference Chairs



Paula Csillag

ESPM University
and ProCor



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Color Vision Deficiency in Video Games

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ABSTRACT

The videogame industry is currently comparable to the cinema industry in terms of number of products, audience and wealth of the sector. This industry has proven to be attentive to an audience that can be perceived as a niche audience but which is actually numerically very important: Color Vision Deficiency (CVD), which involves the reduced capacity or impossibility of perceiving specific colors. This genetic anomaly manifests as incomplete color perception and consequent reduced chromatic distinction capacity. CVD incidence is not negligible; about 8.5% of men and 0.5% of women suffer from it. In this work we present some characteristics of color deficiency and how the video game industry deals with it.

1. INTRODUCTION

The video game industry can be identified within the tertiary and quaternary sectors of the entertainment industry. A report (Urbanemujoe, 2022) by the Entertainment Software Association (ESA) indicates that aided by the lockdown resulting from the COVID-19 pandemic, the total revenue of the video game sector in the United States alone reached \$61.4 billion in 2021, demonstrating that it is no longer merely a niche market. According to an independent report (Steam, 2024), in 2023, on the Steam digital distribution service alone, 14.445 titles were released, an increase of 1.922 compared to 2022.

Video game development, ranging from indie productions to major software houses, heavily relies on color for interfaces and gameplay dynamics. This practice is understandable because color, besides being a powerful expressive tool to guide the game narrative (Joosten et al., 2010), is also a quick means to direct players to use the graphical interface efficiently. For example, designing the interface to distinguish factions using different colors in a team-based game is undoubtedly effective and easy to implement.

Color Vision Deficiency (CVD), the reduced capacity or impossibility of perceiving specific colors, is a genetic anomaly that leads to incomplete color perception and consequent reduced chromatic distinction capacity. The incidence of CVD is not negligible; about 8.5% of men and 0.5% of women suffer from it.

In the case of highly successful titles such as Minecraft, published in 2009 by Mojang Studios, the player base consists of approximately 140 million unique connections per month (with peaks of 11.9 million players connected simultaneously; assuming an equal distribution between genders, this equates to nearly 6.000.000 players with Color Vision Deficiency every month.

Despite this, the fast-paced market rhythms, the economic volume invested, and the need to meet deadlines often lead developers to overlook, or at least underestimate, this aspect of accessibility to video game products. There is no official list (PCGamingWiki, 2024) of computer or console products developed that implement specific settings for people with color vision deficiency. However, numerous developers have tackled the issue with results ranging from excellent to detrimental.

2. A NOVEL APPROACH TO COLOR DEFICIENCIES

Literature describes color vision deficiencies exclusively from the retinal point of view. The three types of anomaly are in fact described according to the class of cones affected. There are

three main types of CVD: protanopia, deuteranopia, and, much rarer, tritanopia, according to the relative class of cones involved. If the anomaly is milder and the class of cones partly functions, it is called protanomaly, deuteranomaly, or tritanomaly. In addition to these six conditions, there is a much rarer one called achromatopsia, which entirely prevents color perception (“grayscale vision”). However, science has already established for almost a century that color vision is not only the result of the work of the retina but also of the brain. The processing of the brain is as well at the base of adjustment mechanisms that make the visual system much more robust to unpredictable variations of the scene. These mechanisms are present also in color-deficient observers. We do not want to explore these aspects in this paper, the interested reader can find more information here (Eschbach et al., 2014; Rizzi et al., 2014, Eschbach et al., 2022; Plutino et al., 2023). We mention these mechanisms to explain that context-based compensation mechanisms can help color-deficient observers partially compensate for the lack of information. If on the one hand this helps the color deficient observer on the other it makes the job a little more difficult for those who try to model color deficiency or more simply to help color deficient players. With this in mind, we present some of the strategies that are usually used to allow color-deficient gamers to enjoy video games

3. THE ISSUE

This article is not intended to be a complete list of the solutions currently used to solve the problem of the Color Vision Deficiency (CVD) problem. However, we will present some examples of how developers have addressed the issue. The gaming issues related to this visual deficit can sometimes prevent the completion of essential tasks entirely. In team games where different groups are differentiated by using colors (in most cases, red for the opposing team and blue or green for one’s team), a person suffering from e.g. Deuteranopia cannot distinguish between their teammates and opponents. The issue often extends to the interface (specific actions to perform, the player’s health level, etc.), puzzles (connecting elements of the same color, finding an object in a different color context), the crosshair, or necessary game effects (e.g., the red glow at the edges of the screen to indicate that damage is being taken). Additionally, color is often used as a narrative tool; particular visual effects are employed to change the atmosphere of a scene from “normal” to “dangerous” through the use of red light or to induce a sense of “unease” or “dread” using green or cerulean. All these nuances do not achieve the same effect for atypical trichromats. At the same time, they are entirely invisible for those with a total deficit in one of the three types of cones. The problem is even more severe in e-sports, where the game’s competitive aspect is central, and the disadvantage arising from this type of problem is critical. The anomaly affecting the cones in CVD not only prevents the perception of a specific color but also confuses the perception of the other colors that the visual system would typically be equipped to handle. This peculiarity makes it unthinkable to solve the issue simply by removing a specific color from the interface design. Chromatic confusion and color perception in context represent the main reasons why many adjustments made in simulations by some developers are ineffective in providing visually impaired people with satisfactory gaming experiences. The issue has been known for a long time and involves so many people that it is not negligible when related to the gaming sector.

4. COMMON APPROACHES

Many game developers have tried to address the problem by developing filters that modify the color scheme in the game so that people with CVD perceive the game scenario with enhanced contrast regarding their specific pathology. Real-time correction filters, however, cannot compensate for the disadvantage of CVD people and sometimes do not provide any benefit. Beyond some blatantly incorrect filters, such as the famous one in Bethesda’s *Doom*, where the filter simulated the type of visual deficit instead of creating a color scheme to counteract it, other widely popular games like Blizzard’s *World of Warcraft*, Bungie’s *Destiny 2*, and Ubisoft’s *Assassin’s Creed*, to name a few, while not making specific errors in filter implementation, allow choosing the type of visual deficit (Protanopia, Deuteranopia, and

Tritanopia) with few or no other options to correct any imperfections. Many of these solutions, however, focus more on color correction performed pixel by pixel, not considering that vision is a phenomenon strongly influenced by the entire visual field. Different levels of luminance in the scene, phenomena like color opponency or simultaneous contrast, which can invalidate real-time filters even in people with a partial deficit, are not considered. There is no actual index of how the various deficits affect the spectrum as a whole because deficit conditions are not always complete. In the case of a partial deficit, the intensity of the problem results in a non-linearity of the correction applied by the filter.

5. THINKING OUT OF THE BOX

What solution could be better to ensure a more equitable gaming experience for CVD players? A straightforward and cheap solution that seems to work in many cases is to give distinguishable elements blue and orange colors instead of the typical red and green. When tested with various CVD simulators, these colors appear to be the most discriminable color pair across the various visual deficits. Another safe solution that should be implemented not at the end of the design process but from the early stages of the game development is to avoid creating critical gameplay and narrative passages solely based on color. Always add graphic elements (geometries, patterns, or animations that are easily perceivable even by people with CVD). Use other elements like sound to compensate for what might be lacking in color. Regarding the possibility of including CVD options in graphic settings instead of just hypothesizing correction filters, integrate the graphic options with the ability to choose colors for different game elements (allies, enemies, health kits, explosive elements, powerups, etc.). An example of this type of implementation is Blizzard Entertainment's *Overwatch 2*, where, after a false start with only three filters strongly criticized by the CVD player community, the game was also updated to include the possibility of selecting colors; another perfect example is Electronic Arts' *Battlefield 1*, where it is possible to modify the outline of the various teams through a true color picker based on Hue-Saturation-Value.

Among the various hypothesized approaches, a more particular one follows the opposite path; this system is plausibly more sensible in e-sports where the competitive component is higher. Instead of developing a system to improve the performance of CVD players, the proposed system involves implementing a visual impediment system for players with normal vision. Applying this penalty covers the inevitable gap that still occurs using improvement interventions, ensuring fairer competition among the various players.

6. CONCLUSION

The design of an optimal system to address the issue of the perception gap between players with normal vision and CVD cannot be conceived as a simple filter to be applied as an overlay on the gaming experience. It is necessary to study additional complements (not necessarily related to vision) and collaborate with experts and individuals who suffer from the condition during the development phase. The number of discriminating elements that can arise in a broad and variable-rich context, such as that of a video game (which remains a highly visual medium), is such that a single solution cannot exist; each case must be tailored to the specific product. Furthermore, more tests with feedback from real CVD players (not simulations) should be conducted to evaluate those typical visual phenomena (color constancy, contrast, background interference, to name a few) that compromise the linearity of perception and undermine simpler and cheaper solutions such as correction filters, which have been commonly (and inefficiently) used in the video game industry to date.

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REFERENCES

- Eschbach, R. and Nussbaum, P. *Initial findings on changing the background in pseudo-isochromatic charts*, *Electronic Imaging*, vol. 34, pp. 1-2, 2022.
- Eschbach, R. Morgana, S. Quaranta, A. Bonanomi, C. and Rizzi, A. *Feeling edgy about color blindness*, in *Electronic Imaging: Science and Technology*, pp. 99-99, SPIE IS&T Electronic Imaging Symposium, 2014
- Joosten, E., G. van Lankveld, e P. Spronck. 2010. *Colors and Emotions in Videogames*, In , 61-65.
- PC Gaming Wiki. 2024. *List of games that support color blind mode*, 2024. https://www.pcgamingwiki.com/wiki/List_of_games_that_support_color_blind_mode.
- Plutino, A., Armellin, L., Eschbach, R., Mazzoni, A., Marcucci, R. and Rizzi, A. *Testing the role of vision spatial processing in color deficiency*, in *Electronic Imaging: Science and Technology*, IS&T, 2023.
- Rizzi, A., Eschbach, R. , Quaranta, A. and Bonanomi, C. *Modified ishihara test to study the role of edges in color discrimination*, *Italian Journal of Aerospace Medicine*, vol. 11, 2014.
- Steam. 2024. *Steam Game Release Summary by Year*, SteamDB. 2024. <https://steamdb.info/stats/releases/>.
- Urbanemujoe. 2022. *2022 Essential Facts About the Video Game Industry*, Entertainment Software Association. 2022. <https://www.theesa.com/resource/2022-essential-facts-about-the-video-game-industry/>.

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More information at www.aic2024.org

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Organized by Associação ProCor do Brasil and ESPM

Cover design by Gisela Costa Pinheiro Monteiro,
Tecnologia da Universidade Federal Fluminense

The background of the entire page is a close-up, monochromatic teal image of a parrot's feathers. The feathers are layered and have a fine, ribbed texture, creating a sense of depth and movement. The lighting is soft, highlighting the individual barbs of the feathers.

AIC 2024

**São Paulo,
Brasil**

**Color Design,
Communication
Marketing**