

## **Hyperspectral imaging in cinema - resolving old problems, creating new ones**

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Application of HSI in cinema for resolving quite old problem (120+years) - reproducing of full color gamut in cinema. What differ application in cinema from all other HSI applications? What new addition to HSI must be invented in order to resolve cinema problems. What are settings and particularities of application of the HSI in cinema? What additional knowledge we need in order to correctly introduce HSI in cinema.

Right now, color gamut in cinema is highly limited, no more than 50 % of all visible colors. Only way to bypass this limitation in capturing images is to use HSI for obtaining all colors than human eye can see.

In the paper will be reviewed current stage of color in cinema and his limits. Introducing HSI as approach to resolve this issue. Specific HSI approach for application in cinema. Two main capture technologies: archival film scanning and live cinema camera capture. Challenges for both technologies. First results with HSI scan of film stocks. Comparison with old technologies. Differences between 3 color scan and HSI scan. Expect to show different CIE graphics of distribution of colors with normal and HSI scan. Problems and possible solutions for live action HSI camera. This will be illustrated with some achievements we have in this technologies - (first HSI scan of different type of color films, AGFA, Kodak, ORWO, old SVEMA etc.) and because refer to quite interesting and popular domain like entertainment which is not on main focus of HSI, considered to be interesting both for highly specialized public (because of new approach) also for beginners in this technology to create interest and "catch" as many followers as possible showing application in such "famous" and "vanity" domain as cinema.