CTAN-508 Live Action Integration with Visual Effects
Units: 2
Spring 2025 — Wednesday Night — 7:00pm-9:50pm (PST)
Location: Zemeckis, RZC-117

Instructor: Alessandro Jacomini
Contact Info: jacomini@usc.edu
Office Hours: available upon request

Teaching Assistant: Pablo Diaz De Leon Hicks
Contact Info: diazdele@usc.edu
Lab Hours: Wednesday 4:00-6:50pm
Contact Info:

IT Help: Creative Tech Help Desk
Contact Info: creativetech@sca.usc.edu,
Contact Info Phone: 213-821-4571

Land Acknowledgement

USC acknowledges that we are on the traditional land of the Tongva People. For thousands of years, the Tongva people lived on this land we occupy today and were considered the most powerful indigenous peoples to inhabit the Los Angeles basin. Along with the Tongva, we also recognize the Chumash, Tataviam, Serrano, Cahuilla, Juaneño, and Luiseño People, for the land that USC also occupies around Southern California. To learn about the Indigenous land on which your learning location resides, please visit Native-Land.ca to discover the Original People of your home.

This is an in-person class

Course Description

This course focuses on developing a comprehensive understanding of the role and potential of digital compositing techniques in the creation of computer-generated imagery, both as a standalone process and within the framework of a modern studio CGI production pipeline. It will provide an overview of the theory and techniques involved in creating images and visual styles that effectively utilize compositing to enhance storytelling and evoke emotions. Additionally, students will participate in a series of hands-on workshops and assignments to complete and turn in, engage in collaborative in-class discussions, and receive constructive feedback on their work.
Familiarity with Maya, Arnold and Nuke is recommended although the objective is to understand and learn concepts that can be applied to other 2d and 3d packages as well.

Learning Objectives

Students will gain proficiency in the foundational elements required to utilize both basic and advanced CGI compositing techniques effectively and purposefully. Upon completion of this course, students - particularly those interested in the cinematic arts - will have gained a deeper understanding of the principles and practices involved in enhancing the visual impact of their future projects. Moreover, they will have developed greater skill in using compositing to convey and interpret stylistic and narrative elements within their work, effectively creating film looks in 2D/3D animation and visual effects.

Prerequisite(s): CTAN 462, Visual Effects
Co-Requisite(s): None
Concurrent Enrollment: None
Recommended Preparation: Linked-in Learning (via my.usc.edu), Maya and Nuke Essential Training, Nuke Learning Channel on YouTube and Vimeo

Course Notes

Grading will be Letter (A, B, C, etc.) or Credit/No Credit if applicable. We will conduct all classes in person. Blackboard will be used for Announcements, Class Notes, Video Links and Tutorials as well as the Mid Term Questionnaire and Final Test/Questionnaire.   Assignments are turned in on Google Drive.

Technological Proficiency and Hardware/Software Required

Basic computer proficiency is assumed. Maya, Arnold rendering plugin, Nuke compositing software, Adobe Photo Shop and Substance if necessary. A willingness to learn new software packages is necessary as is a familiarity with Windows or Mac based desktop environment.

Required Readings and Supplementary Materials

Any required reading will be provided by instructor in the form of links, or digital handouts. Supplementary materials also take the form of free tutorials can be found in the following link via the my.usc.edu web page. See **my.usc.edu** web portal page, open all links and find the Lynda.com link/button. Other supplemental Online Help can often be found through Blackboard links to the various software tutorials referenced in class. These will be discussed in class.

Optional Reading Materials

"The Visual Story", Bruce Block, Focal Press, 3rd Edition.

"Digital Compositing for Film and Video", Steve Wright, Focal Press, 2024, 5th Edition.
"The Art and Science of digital compositing", Ron Brinkmann, Morgan Kaufmann, 2nd Edition.
"Nuke 101", Ron Ganbar, Peachpit Press, 2nd Edition.
"Nuke Codex", Daniel L Smith, danimation.com Publishing, 2022
"Cinematography Theory and Practice", Blain Brown, Focal Press, 4th Edition.

Description and Assessment of Assignments

For the hands on session and homework section of class, students will be producing imagery in Nuke. Students should start the hands on session in class and eventually complete it as homework and turn it in on the following class date. We will review in class when time permits as part of the learning process and evaluate progress as the class moves forward. The final test/project is an animated shot or shots sequence and is evaluated in terms of what is taught in class: quality of work, overall look and feel, final lighting and compositing.

Grading Breakdown

Participation: 10% **-** Questions and discussion of relevant topics presented in class are encouraged

Homework: 60% - A set of 12 homework/inclass assignments, 5 points each

Class Final Project: 30 % - Due May 7th. The final project consists of compositing of live action and 3d scenes. The work will serve to demonstrate the range of techniques and artistic skills learned in the class, and allow the student to show how their knowledge of lighting and rendering is applied to their own work.

Assessment Tool (assignments)	Points	% of Grade
12 Homework Assignments. 5pt each	60	60
Participation	10	10
Final Project	30	30
TOTAL	100	100

Grading Scale

Course final grades will be determined using the following scale
A   94-100
A-   90-93
B+   87-89
B   83-86
B-   80-82
C+   77-79
C   73-76
C-   70-72
D+   67-69
D   63-66
D-   60-62
F   59 and below

Assignment Submission Policy

Homework assignments should be copied/submitted to the Google Drive area before the next class date. Final Project is due on the last day of class, submitted to the Google Drive area. Quiz and Tests would eventually to be taken on specified dates using Blackboard

Grading Timeline

Homework will be given credit when turned in. Mid Term Questionnaire and Final Test/Questionnaire are graded through Blackboard

Additional Policies
Students are expected to be on time and prepared for each class. When assignments are late or not completed the grade may be lowered up to one full grade.

Attendance
No portion of the grade may be awarded for class attendance, but non-attendance can be the basis for lowering the grade, when clearly stated on the syllabus. Attendance policies may address student athletes with approved Travel Request Letters and students who give advance notice of religious observation.

Participation
Participation is intended and credited as students active contribution to the classes review process and presentation of the student own homework and attention to others own presentations, contribution and attention to in class conversation and in class work.

Course Schedule

	Course Schedule: A Daily Breakdown	
	Topics/Daily Activities	**Assignments**
Week 1 01/15	**Class 1, Introduction to Compositing** Welcome Students, Course Overview & Structure. What is compositing and its purpose Historical Perspective Node base compositing vs layer base Lighting Fundamentals Introduction **In Class Review**: Homework #1 **Workshop/Hands on Session**: Exercise #1	**Exercise/Homework #1** Due 01/22
Week 2 01/22	**Class 2, Learning the Basics** Nuke interface orientation, Basic menu bar options Toolbar, toolbox, toolset and working with nodes The alpha channel concept (2d and 3d) The merge node (over, screen, multiply…) Workflow: principle of good compositing **In Class Review**: Homework #1 **Workshop/Hands on Session**: Exercise #2	**Exercise/Homework #2** Due 01/29
Week 3 01/29	**Class 3, Image and Elements manipulation in Nuke** Masking, garbage matte. Rotoscoping Matte extraction, keying for luma or chroma Color correction and grading, color matching Spatial filters: convolve, blur, defocus, sharpen Geometric transformation: pan, rotate, scale, warp **In Class Review**: Homework #2 **Workshop/Hands on Session**: Exercise #3	**Exercise/Homework #3** Due 02/05

Week 4 02/05	**Class 4, Case Study: the look of "Olaf Frozen Adventure" with Guest Speaker** Deconstructing the look Using Nuke and Photoshop for proof of concept Using Nuke for creating assets and texture The switch node, keyframe animation, channel swap **In Class Review**: Homework #3 **Workshop/Hands on Session**: Exercise #4	**Exercise/Homework #4** Due 02/12
Week 5 02/12	**Class 5, Compositing with 3D CGI Elements** Pixel, components, channels, concatenation Spatial resolution, format, bit depth Color science, color space, color management, lin-log The light behavior, exr multichannel format Render outputs, multipass render **In Class Review**: Homework #4 **Workshop/Hands on Session**: Exercise #5	**Exercise/Homework #5** Due 02/19
Week 6 02/19	**Class 6, Compositing for Lighting** Scene continuity, color balancing, lighting/shadowing Wrap light, light bloom, diffusing the highlights Atmospheric integration: haze and fog Vignetting, edge treatment, edge bleed Motion blur, depth of field, defocus Eliminating render noise **In Class Review**: Homework #5 **Workshop/Hands on Session**: Exercise #6	**Exercise/Homework #6** Due 02/26
Week 7 02/26	**Class 7, Case Study: the look of "Feast" and "Paperman" with Guest Speaker** Deconstructing the look Illustrative work with and without line work Set extension and projection Review of comp techniques used in the shorts **In Class Review**: Homework #6 **Workshop/Hands on Session**: Exercise #7	**Exercise/Homework #7** Due 03/05
Week 8 03/05	**Class 8, Compositing in Vfx - Part1, Tracking** Compositing in Vfx overview Working in Nuke 3d: the tracking process 2d & 3d tracking: tracker node, match move and stabilization 2d motion blur, camera tracking, retiming **In Class Review**: Homework #7 **Workshop/Hands on Session**: Exercise #8	**Exercise/Homework #8** Due 03/12
Week 9 03/12	**Class 9, Compositing in Vfx - Part 2, Projection** Working in Nuke 3d: the camera projecting process Basic geo in Nuke : import geometry and 3d lights Scan line renders and rendering 3d scenes Painting in Nuke: rotopaint and animation **In Class Review**: Homework #8 **Workshop/Hands on Session**: Exercise #9	**Exercise/Homework #9** Due 03/26
Recess Week 03/19	**SPRING RECESS - 03/16-03/23** No Class 10. Enjoy your time Off!	**No Homework Assigned**

Week 10 03/26	**Class 11, Compositing in Vfx - Part 3, Camera Effects** Camera and Cinematography overview The camera distance and perspective Lens and focus Lens distortion, lens aberrations and lens artifacts Glows and lens flares **In Class Review**: Homework #9 **Workshop/Hands on Session**: Exercise #10	**Exercise/Homework #10** Due 04/02
Week 11 04/02	**Class 12, Case Study: the look of "Far from the tree" and "Exchange Student" with Guest Speaker** Deconstructing the look Illustrative work with line work Review of comp techniques used in the shorts **In Class Review**: Homework #10 **Workshop/Hands on Session**: Exercise #11	**Exercise/Homework #11** Due 04/02
Week 12 04/09	**Class 13, The Production Pipeline** The path to final in production The life of a shot, from storyboard to rough to fine Quality and efficiency, pre comp, disk usage Tech check and color timing The approval and post approval process Ai for cgi: upscale and denoising, Ai for compositing: rotoscoping, set extension, de-aging **In Class Review:** Homework #11 **Workshop/Hands on Session**: Exercise #12	**Presentation final project**
Week 13 04/16	**Class 14 – Case Study: the look of "Wish"** Deconstructing the look Lost and found and breakup, hue variation and spill over, diffuse vs specular, edge treatment, washes and watercolor, paper feel Review of comp techniques used in the shorts **In Class Review:** Homework #12 **Presentation final project**	**No Homework** No homework due, spend time on Final Project, due 05/07
Week 14 04/23	**Class 15 – Learning to See: Elements of Visual Storytelling** The approval process: understanding, evaluating and appreciating images (focus lighting and compositing). Judging color, brightness, contrast Vision, perception, and imaging. Selection, Gestalt, Illusion and Ambiguity. Attention. Components and elements of an image, of a shot Aesthetics in visual storytelling **In Class Review:** feedback session	**No Homework** No homework due, spend time on Final Project, due 05/07
Week 15 04/30	**Class 16 – Preparation to Final Project** **In Class Review:** feedback session	**No Homework** No homework due, spend time on Final Project, due 05/07

Study Days 05/03-05/06	Saturday, May 3th – Tuesday, May 6th No final examinations may be scheduled on Study Days.	Study Days before Final project due 05/07
Final Class 05/07	Finals: Final Project In Class Screening and Review of Final Projects and open conversation.	Final Project due 05/07 7-9pm

This is an in-person class

In accordance with university recommendations, all meetings of this class will be held in person. Students who become ill and need to self-isolate will be supported in their efforts to stay current with classwork and assignments, to the extent possible. Please contact Prof. Alessandro Jacomini and your SA Pablo Hicks at least one hour prior to class start time if you become ill and need to self-isolate. Do not come to class if you are experiencing any symptoms of COVID-19 or other illnesses.

Timely attendance is mandatory and failure to attend all class sections from beginning to end may affect grades.

· Exemptions will be allowed on a case-by-case basis and must be supported by a written accommodation request from the USC Office of Student Accessibility Services (OSAS).

· Students who become ill and need to self-isolate will be supported in their efforts to stay current with classwork and assignments.

Students must contact the professor or SA 24 hours prior to class start time if they need to miss class for any reason.

Info on use of AI Generators in the John C. Hench Division of Animation and Digital Arts

In this course, AI may be used as reference or inspiration for your work, but we do not accept AI-generated art as your own original work as it is deemed derivative of other works whose originators may not have granted permission for its use.

You should also be aware that AI text generation tools may present incorrect information, biased responses, and incomplete analyses; thus, they are not yet prepared to produce text that meets the standards of this course. To adhere to our university values, you must cite any AI-generated material (e.g., text, images, etc.) included or referenced in your work and provide the prompts used to generate the content. Using an AI tool to generate content without proper attribution will be treated as plagiarism and reported to the Office of Academic Integrity. Please review the instructions in each assignment for more details on how and when to use AI Generators for your submissions.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. (Living our Unifying Values: The USC Student Handbook, page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or

group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. (Living our Unifying Values: The USC Student Handbook, page 13).

The School of Cinematic Arts Support Systems and Statements

Diversity and Inclusion are foundational to the SCA community. We are committed to fostering a welcoming and supportive environment where students of all identities and backgrounds can flourish. The classroom should be a space for open discussion of ideas and self-expression; however, SCA will not tolerate verbal or written abuse, threats, harassment, intimidation, or violence against persons or property. If students are concerned about these matters in the classroom setting, they are encouraged to contact their SCA Diversity and Inclusion Liaison, http://cinema.usc.edu/about/diversity.cfm; e-mail diversity@cinema.usc.edu or anonymously submit a report on SCA Community: https://scacommunity.usc.edu/secure/diversityEquity/ You can also read more about how to report discrimination based on a protected class here: https://eeotix.usc.edu/get-help/what-are-my-choices-text/

SCA Office of Student Services
213-740-8358 or StudentAffairs@cinema.usc.edu

SCA Embedded Therapists
Students enrolled in an SCA major program can schedule an appointment with an embedded therapist for the School of Cinematic Arts through the student health portal MySHR.

SCA Community
For additional SCA resources please visit scacommunity.usc.edu

Creative Technology and Support
(213) 821-4571
creativetech@cinema.usc.edu
Location: SCA 128
Support Hours: Monday - Friday, 8:30 AM - 8:30 PM
https://knowledgebase.sca.usc.edu/
https://workstations.sca.usc.edu/

Physical Production Office
The Physical Production Office assists students and faculty with production-related matters including production numbers, locations, permits, insurance, gear and equipment vendors, safety issues, and crew and actor policies. More information can be found by visiting the online Production Procedures and Safety Handbook. The Physical Production Office is located at SCA 304 and is open every weekday from 9am-5pm (Fridays 9am-1pm). You can also reach the Office by calling 213-740-1298 or by email at spo@cinema.usc.edu.

Office of Industry Relations
School of Cinematic Arts - SCA 235
(213) 740-4432
ir@cinema.usc.edu

Cinematic Arts Library Research Guide
https://libguides.usc.edu/cinema

Statement on Academic Conduct and Support Systems

Academic Integrity:

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, compromises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodation is not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

COVID-19 Resource Center - https://coronavirus.usc.edu/what-should-i-do/

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline - 988 for both calls and text messages – 24/7 on call
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL) – 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 740-0411
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-2850 or otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

PLEASE NOTE:
FOOD AND DRINKS (OTHER THAN WATER) ARE NOT PERMITTED IN ANY INSTRUCTIONAL
SPACES IN THE CINEMATIC ARTS COMPLEX