

# Revvng Up A Storm

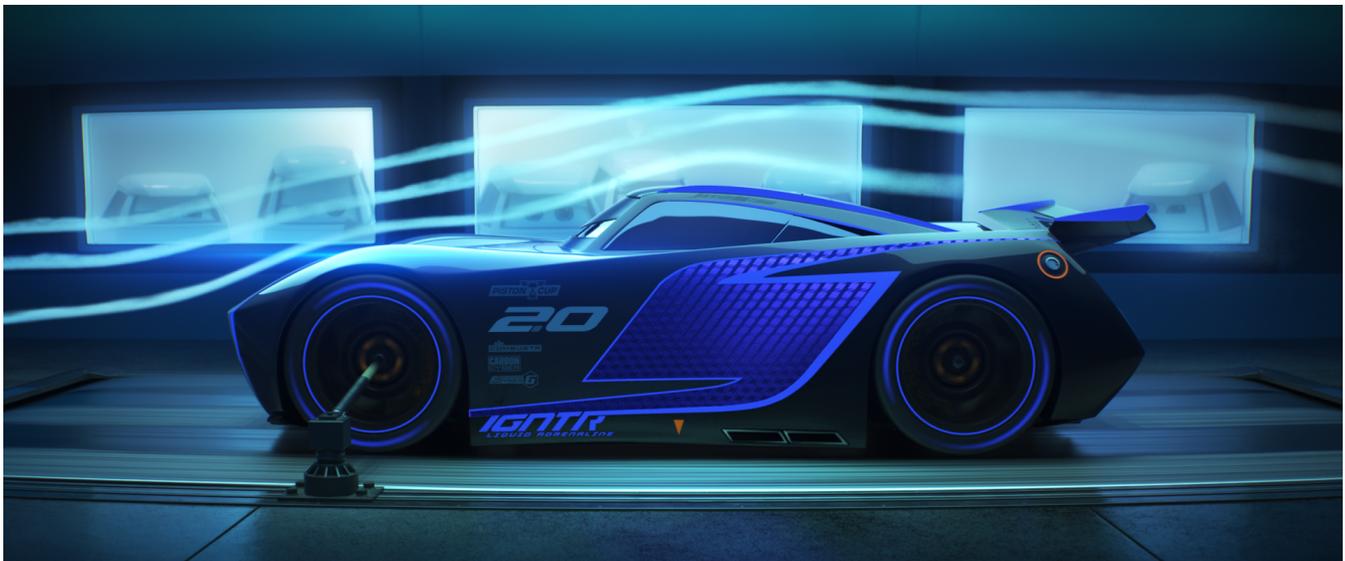
A Talk on Creating Jackson Storm

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## ABSTRACT

Cars 3's main antagonist is Jackson Storm, the first of a new breed of Next Gen racers. Lightning McQueen is definitely a classic, but Storm represents a sea change in many ways. Much of our specialized technical work on Storm reflects this progression to support his characterization on screen.

## CCS CONCEPTS

• **Applied computing** → *Arts and humanities*;

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## KEYWORDS

Disney, Pixar, Cars, Cars 3, Jackson Storm

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## 1 RIG AND ANIMATION

Bringing Storm to life was a huge challenge requiring us to diverge from and innovate within the existing car rigs. A study in contrasts, McQueen is confident, warm, and speaks with feeling, while Storm conveys a sense of cockiness masked in a cool demeanor. Minimalism in his performance accentuates the drive and arrogance that flares in his eyes with brutal efficiency. That required adjusting every part of the facial rig, custom tailoring the weighting and spline motion to emphasize their differences with the other vehicles of the Cars world. The differences in the sleek curves of the next generation racer's model also parallel the way his body and

facial rig express emotion, the sharp geometric design reflected in the sharp dialogue by Armie Hammer. Modifying the projection patches and adding new ones also affected the lip motion and topological changes emphasizing the smoother style. A combination of unique sculpts and deformers were developed to accent his arrogance and further separate him from the crowd.

One of the biggest hurdles in animating Cars characters is making each of them feel unique, even though they may have similar body shapes and shy away from extremes. To make Storm look appealing within these limitations, animators spent much time in designing Storm's facial expression and the way he moves. Storm's body has a futuristic design with straight lines and a wide flat bumper, giving him his cold, digital, and precise look. Inspired by these features, his mouth expressions were designed to be angular and sleek. By overly articulating his lip-sync, we showed Storm's confident and cocky attitude. His brows and lids were posed with straight lines and sharp corners as the anchor for his self-assured expressions. Since Storm was designed to stay low right above the ground with his rectangular bumper, animators kept him horizontal with less body leaning or tilting than many of the others. Representing a new generation of racers, his movement was kept straight and precise, a physical and mental representation of the performance.

## 2 LOOK DEV AND TEXTURING

Storm is the first of a new generation, and this was true in our looks development as well. As we were shading Storm we were also fleshing out our LEADR mapping pipeline, building the technology to easily parameterize, texture and layer different LEADR mapped materials. This includes developing a car paint metal flake material, carbon fiber, brushed metals, among other materials that benefit greatly from generating fine details through varying specular anisotropic and roughness response.

Each of these unique materials accentuated the visual difference between Storm and McQueen, who is traditionally shaded with a clearcoat on solid paint. We further stylized Storm using the LEADR mapped materials and pushed the shading to capture a unique behavior in his major design components. These new materials allowed us to create an illumination response unlike any of our previous car shaders, while still providing a reasonable behavior in our physically based shading and path traced rendering environment.

All of these new materials behave very specifically according to the underlying geometry, viewing and lighting angles, accentuating the angular design of the car body shell and details, as well as the main S storm symbol emblazoned across his sides. Storm's materials were the first of the Next Gen racer material family to be developed, and we propagated and expanded on the work to many other stylized material types in the following Next Gen racers.