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ANALYSE THE PERFORMANCE OF TIME FACTORS IN FLASH

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ABSTRACT

In the last few years, the Web has become popular, although there have been some discord as to whether the Web can be used swiftly and efficiently for these reasons. In order to evaluate their limitations, several studies investigated the accuracy and accuracy of various web technologies. This article updates the proof that the online presentation is right and accurate, expanding on precise and accurate display of multimedia stimuli in previously untested HTML5 solutions. Classical web technologies give reliable and accurate visual content for online testing, but results suggest that in certain settings such technologies should be utilised with caution. The best technique for animations with CSS-based declarative animations is greater than 50 milliseconds in the same way as prior web technologies. The scientific world is increasingly absorbing these advances and exciting potential through the use of old technology.

Keywords: Adobe flash; web animation; multimedia; declarative and procedural animations

1. Introduction

Their computer capabilities and their ability to supply multimedia information is a critical research instrument since the beginning of the computer sciences. Computers can provide visual stimuli even before the popularization of the graphical user interfaces in tachistoscopic applications. The popularity of the Web as a key communication medium has enabled web technology to create the first experimental applications. The appropriateness of using the web for such purposes is debatable given the vast range of web technology, web user agents and OS systems that exist[1]. Several research have therefore analysed the precision and accuracy

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of the various web technology to establish their limitations[2]. Several research have therefore analysed the precision and accuracy of the various web technology to establish their limitations [3]. "The purpose of this paper is twofold: to update the existing evidence on web precision and accuracy when multimedia stimuli are presented, and to extend these studies to untested technologies related to HTML5 and to provide the remainder of information on the exactness and accuracy of the Internet during multifunctionality stimuli presented." For researchers that would like to develop online studies, the findings of the present survey have ramifications if stimuli are to be provided according to exact timing standards (for example, high accurate subliminal priming or reaction timings) [4].

1.1Declarative and procedural animations

The technologies used in web applications to adjust visual stimulus can be broadly divided into two categories: defined animations and generating animations. The first concentrates on what has to take place and the second on how the advantages and drawbacks of both approaches are to be achieved. Declarative animations allow developers to identify animation requirements and to ignore the complexities necessary for implementing them at a low level. However, there is no guarantee of conformity[5]. In this regard, the final outcomes may significantly differ from the original when developers produce animations that do not meet the standards of their system (e.g. a10-ms transition to a device with a granularity of 50-ms of timing). To build a declaratory animation, developers set up a series of crucial frames, and the animation engine (a web animation browser) makes every move between them. **Listing 1** shows a declarative animation example where the primary and end frames are defined.

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```
<?xml version-"1.0" encoding-"UTF-8"?>
<svg xmlns-"http://www.w3.org/2000/svg">
  <rect    id-"box"    x-"200"    y-"200"
width-"100" height-"100" fill-"red">
    <animate   attributeName-"width"   be-
gin-"ls" dur-"4s" from-"100" to-"500"/>
  </rect>
</svg>
```

Listing 1 defined the initial and final key frames [6]

Objects are animated by a procedure animation technique (script) as opposed to key frames. Developers may select if they can use software and hardware components in accordance with the animation required. Procedural animations are however highly tied to the running environment (i.e. hardware, operating system, web user agent versions, etc.) and may have modest changes in effect [6]

1.2Web animations using classic web technologies

HTML5 offers a wide range of animation methods. “Web developers can employ APIs for the creation of declaratory animations, such as Cascading Style Sheets (CSS) or Synchronized Multimedia Integration Language (SMIL) Scalable Vector Graphical Animations (SVG) or SVG for procedural animations via JavaScript, HTML Canvas or WebG. Using the Timing Control for script-based animations API can prevent the known flaw of the conventional JavaScript timer set timeout and set interval (request Animation Frame). Using the script-based animations API Timing control, developers require the browser to update animations rather than figuring out when the optimum time to do it themselves[7].”

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2. Research Overview

The Web has been built in a research centre and is strongly linked to the realm of study ever since. Web experimenters are used by researchers from all disciplines, whereas social scientists are especially interested in carrying out internet research. The experimental circumstances under which users participate are less controlled On-line scientists do not know if the job was handled or the directions correctly read by participants.[7]. Pioneers of Internet-based research were typically quite sceptical when studying their findings. Thus, in the laboratory and online, they conducted several tests comparing social and psychological implications. With rare exceptions, the overwhelming view is that the advantages of online studies exceed their potentially negative effects. Studies that raise methodological issues include those that need to track stimuli and response times reliably and precisely. As has previously been said, the suitability of Web technologies to carry out online testing is investigated several times. However, the data and results of this research should be updated due to the continued advancement of online technology. Studies on the appropriateness of numerous online technologies, including Java and Flash, have been updated correctly during the last decade.[8]

2.1Flash

“Flash is a rich technology for Internet applications (RIA). Developers can use Flash for the administration of different media forms, such as text, vector graphics, bitmap, audio and video. Flash allows direct access to multimedia devices like microphones and cameras, and is frequently used for multimedia streaming and video applications. Those without the programming ability can programme simple flash applications with tools such as Adobe Flash Professional. Professionals can utilise the action scripting language to programme sophisticated ECMA-script apps (e.g., experimental tasks for conducting behavioural

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studies). Once built, Adobe Flash Player executes flash programmes. Adobe Flash Player. This player can be installed as a plugin in most Web user agents free of charge on several software systems." The extensive browser deployment of Adobe Flash Player supposedly makes Flash technology the most often utilised RIA. Mostly, the web is not built into, but embedded into, the web software as an external object. This introduces performance and power consumption inefficiencies in Flash. In addition, Steve Jobs, Apple CEO, showed why Flash does not use iOS handsets in 2011. Flash is a prosperous Adobe firm, and we realize why you want to take it outside your machines. However, Flash is about low power, touch interfaces and open web standards in the mobile age[9]. Adobe announced soon after the completion of Flash's HTML5-based mobile platforms and TV. Probably this trendy technology has a terrible future

3. Objective

This study seeks to determine which of Adobe Flash's most precise and accurate time and frame rate combinations. When we found this optimized combination of time and frame rate, the flash animations analysed in each combination were used to determine if the correctness and exactness of a few successive tests were time-based.

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4. Methodology

"Delays in displaying visual content on a personal computer make the presentation of content unreliable utilising the same system. An external system with the required sensors should be used to record the precise time (start time) when the contents are presented and to delete them from the screen (offset time). All our tests were thus carried out using an external Black Box Toolkit measuring equipment (BBTK). We chose to use an Apple Mac to examine every item. This allowed the most popular operating systems in the same physical device to compare (Microsoft Windows, GNU/Linux, Apple Mac OS). ATI Radeon's X1600 MacBook, SigmalTel's 9220 A1HD Audio Sound card and a 14006900-pixel LCD 60 Hz display were the computer's Apple MacBook Pro A1211 with an Intel Core 2 duo T7600 processor. In two distinct experiments, we have assessed the accuracy and accuracy of the visual presentation. One used the six-hour E-Prime Refresh Clock Test version, with good findings. The other was the Time By Frames by Psycho Py, which also produced good results. In the above-noted machine, we installed a 32-bit version of Microsoft Windows 7 Professional Service Pack 1. We used Google Chrome's most recent version of the web user agent available during the study (Google Chrome 17)."

4.1 Procedure

The tests that followed were carried out using Schmidt[2]. We have determined the transitions between black and white non-gradual key frames. A 2006200 pixel animation in the centre of the screen consisted of the exam. For two items, the timing mechanism and the FPS animation rate were examined. Each example recorded five independent 60-second series, with only the first 100 samples analysed for each series. As a result, 500 samples were recorded for each combination. The schedules were rated as follows: (1) The animation is not looped, following a final keyframe (going into And Playing(1)), (2) the animation is set

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again, and interval is defined by a periodical action script timer (Set interval) (Set interval) (change background, 50). The motion of the Timer item seen in **listing 3**

"The FPS rates were assessed as follows: 2) 60 FPS, screen radiation rate of (all 16.667 ms), and 3) 100 FPS (screen update rate of all 16.667 ms above screen radio) (update every10 ms). As mentioned above, we have performed five consecutive tests for each combination to identify problems of accuracy and time (i.e., during a ten minute long test, the first 100 samples were collected at the beginning of the first minute, the second 100 samples at the beginning of the third minute, the third 100 samples at the beginning of the fifth minute, the fourth 100 samples at the beginning of the seventh minute, and the last 100 samples at the beginning of the ninth minute of the test). Google Chrome 17 and Microsoft Windows 7 SP1 were the most prevalent user agent and operating system. We only evaluated the interval of 50 ms when we found a tip in performance quality in all of our early testing."

```
addEventListener(Event.ENTER_FRAME, update);
function update(event:Event) {
      var currentTime:int = getTimer();
      var newCurrentTime:int = getTimer();
      vardtInt:int = newCurrentTime - currentTime;
      while (dtInt <50) {
          dtInt = newCurrentTime - currentTime;
          newCurrentTime = getTimer();
      }
      changeBackground();
}
```

Listing 2 "Action Script code snippet to control an animation through polling"[6]

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```
var myTimer:Timer = new Timer(50);
myTimer.addEventListener(TimerEvent.TIMER,
changeBackground);
myTimer.start();
```

Listing 3 "Action Script code snippet to control an animation through a Timer object"[6]

5. Results and discussion

We first calculated lost frames rather than observable time errors to comprehend the findings of our investigation (MTEs). Research on the exactness and precision of different software methods for Web animation tends to disregard the time it takes to wait for hardware to respond (such the luminosity of the LCD display). "Equipment measurement has limits too (i.e., the BBTK photo sensors do not provide a continuous analogue value, but rather a discrete digital one based on an adjustable threshold)." This made MTE more precise, using the algorithm to convert to a missed frame count.

Missing a frame means you'll be frozen for 16.667 milliseconds. That is consistent regardless of the situation. If the length of an animation presentation is greater than the duration of a single frame, the animation could suffer from dropped frames (e.g., a 80-ms blank key frame in a 100-ms interval animation). Figure 1 shows that the timing loops and no-loop alternatives are consistent over the five series, whereas the other timing methods deteriorate as their performance declines. "To determine which factors have an impact in the number of missed frames, we analysed them with an analysis of variance (ANOVA) with Timer (loop, no-loop, set Interval, polling, and timer), FPS (20, 60, and100 FPS), Series (1–5), and Color (White vs. Black) as factors. Given the large number of measurements analysed (N = 7500), all main effects and interactions were significant. Consistent with our preliminary analysis, the main effect of FPS was relatively large $F(2, 7499) = 4201.554$, $p<0.001$, $\eta_p^2 = 0.533$,

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confirming that there is a decline in performance when the number of FPS is lower(20) or higher (100) than the refresh rate of the screen. Interestingly, the main effect of Timer, F (4, 7499) = 2751.154, p<0.001, η_p^2= 0.600, and the main effect of Series, F (4,7499) =3390.185, p<0.001, η_p^2 =0.649, were also significant, showing that choosing a proper timing mechanism has a noticeable impact on performance. The results of the ANOVA also revealed important interactions between some of these factors: The **Timer x FPS x Series interaction**, F (32, 7499) = 118.232, p<0.001, η_p^2 = 0.340, the Timer x FPS interaction, F(8, 7499)= 662.020, p<0.001, η_p^2 = 0.419, and the Timer x Series interaction, F(16,7499) =653.211, p<0.001, η_p^2=0.587, were all significant. Although significant, all other main effects and interactions had small effect sizes (all η_p^2 <0.2).Even ignoring the time degradation across series, the timing mechanisms that we have evaluated can be sorted from best to worse as follows: (1) loop (M: 0.67, SD: 1.087), (2) no-loop (M:0.68, SD: 1.175), (3) set Interval (M: 0.88, SD: 1.658), (4) timer (M:1.06, SD: 1.591), and (5) polling (M. 2.42, SD: 1.58).”

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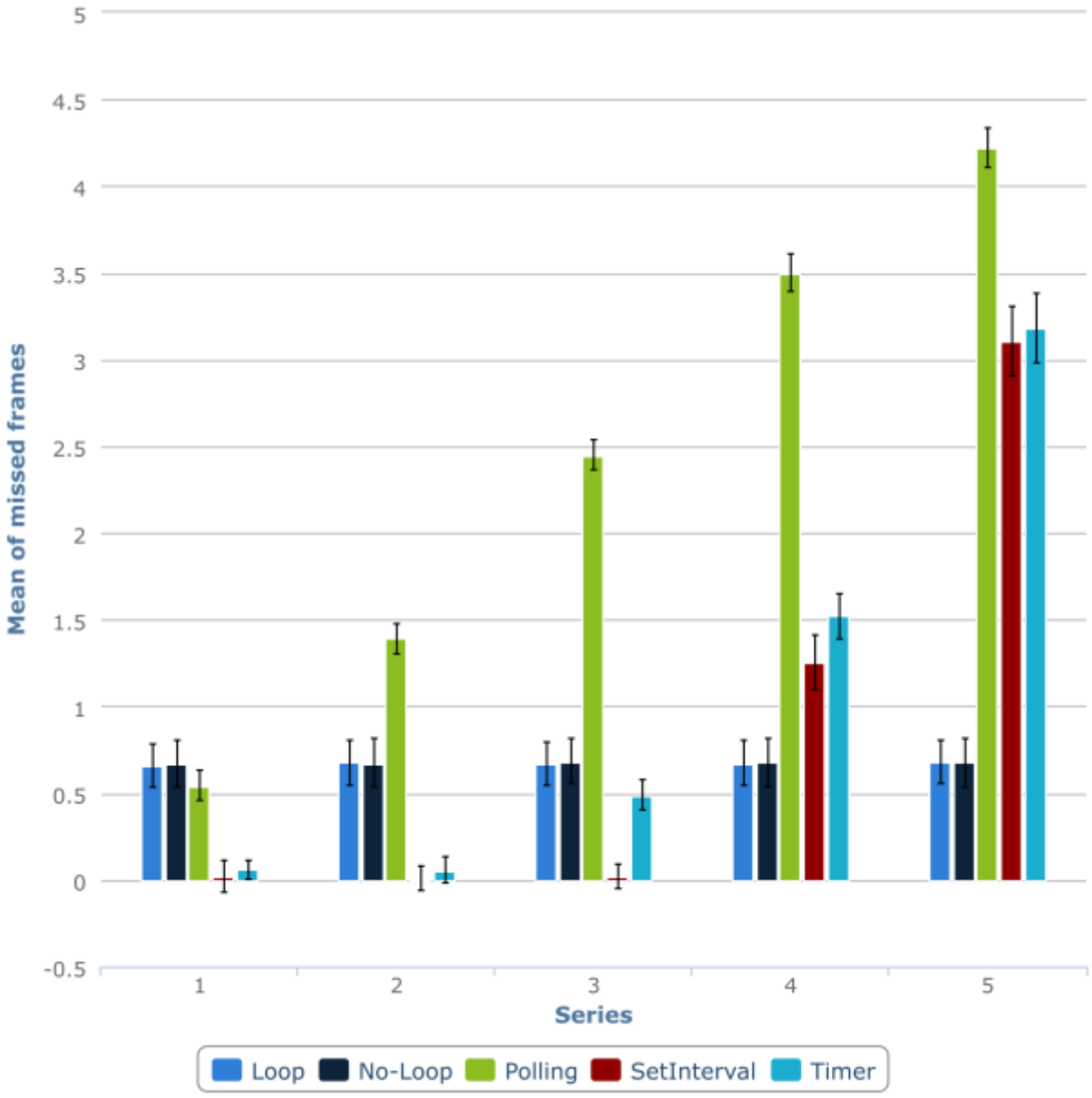

Figure 1 "Number of missed frames per series for Adobe Flash animation using different timing mechanisms"[6]

6. Conclusion

The aim of the current research is to quantify the precision and accuracy of stimulus durations, with implications for Web-based reaction time studies. Time has become a standard dependent variable in Internet-based psychological tests, due to increasing reaction

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times. However, the accuracy of stimulus timing has a limit: If a stimulus is not provided on time or at the appropriate duration, participants' actual reaction times might not be measured accurately. Thus, those researchers who wish to measure reaction times in online trials should use the most accurate time-keeping methods available.

Reference

[1] M. H. Birnbaum, "Human research and data collection via the Internet," *Annu. Rev. Psychol.*, vol. 55, pp. 803–832, 2004.

[2] W. C. Schmidt, "Presentation accuracy of Web animation methods," *Behav. Res. Methods, Instruments, Comput.*, vol. 33, no. 2, pp. 187–200, 2001.

[3] J. Eichstaedt, "An inaccurate-timing filter for reaction time measurement by JAVA applets implementing Internet-based experiments," *Behav. Res. Methods, Instruments, Comput.*, vol. 33, no. 2, pp. 179–186, 2001.

[4] S. Dehaene *et al.*, "Imaging unconscious semantic priming," *Nature*, vol. 395, no. 6702, pp. 597–600, 1998.

[5] R. R. Hassin, M. J. Ferguson, D. Shidlovski, and T. Gross, "Subliminal exposure to national flags affects political thought and behavior," *Proc. Natl. Acad. Sci.*, vol. 104, no. 50, pp. 19757–19761, 2007.

[6] A. Voss, K. Rothermund, A. Gast, and D. Wentura, "Cognitive processes in associative and categorical priming: A diffusion model analysis.," *J. Exp. Psychol. Gen.*, vol. 142, no. 2, p. 536, 2013.

[7] S. M. Dorward, R. Pike, D. L. Presotto, D. M. Ritchie, H. W. Trickey, and P. Winterbottom, "The Inferno™ operating system," *Bell Labs Tech. J.*, vol. 2, no. 1, pp.

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5–18, 1997.

[8] P. Garaizar, M. A. Vadillo, and D. López-de-Ipiña, “Presentation accuracy of the web revisited: Animation methods in the HTML5 era,” *PLoS One*, vol. 9, no. 10, p. e109812, 2014.

[9] P. E. McCullough, F. C. Waltz Jr, W. Hudson, and A. D. Martinez-Espinoza, “Turfgrass management at your fingertips: Information delivered through ‘smart’ phone technology,” *J. Ext.*, vol. 49, no. 3, 2011.