Garry Kasparov vs Deep Blue

Event

On February 10, 1996, world-champion chess player Garry Kasparov lost to IBM's Deep Blue, a chess-playing computer. This match was the first in a set of six that the pair was to face-off in. Despite his early lead, Deep Blue went on to lose three matches, and draw on the other two. The programmers of Deep Blue ended up revamping the machine and doubling its biggest strength, the ability to search through moves to find the best one for the rematch held in 1997. The new and improved Deep Blue which many labeled "Deeper Blue" won two of the six matches, and tied for three of them, giving it a score of 3.5 compared to Kasparov's 2.5.

Kasparov vs Deep Blue singled an important moment in history because it showed how advanced technology was becoming. Artificial Intelligence was getting close to human intelligence. The first match in 1996 was won by Kasparov, and he was the frontrunner because the thinking was when you make a chess move there are a ton of possibilities and a computer will go through all of them while the human brain can recognize 99.6% of them are nonsense. With this idea in mind the experts had Kasparov as the victor and that eventually did happen. Kasparov scoffed at the idea that few thought that IBM would have a chance of winning. He and many others did not think artificial intelligence had reached that point yet. However, in the rematch Kasparov lost, since the newer model included a lot more chess software and was a much more strategic and tactical model than the original. A huge reason that helped Deep Blue win was the physiological aspect of the match itself. IBM didn't release any information about the machine's practice matches prior to the actual match itself. Usually in chess opponents would study the other players history and develop a strategy from there, but in this case Deep Blue had the element of surprise. This led into the human emotion factor, which sometimes can be a strength but other times can lead to someone's defeat. Kasparov himself was known to be an emotional player and this did indeed frustrate him, and threw him off his usual game just a little bit. Machines aren't as vulnerable as humans since they don't have that mental factor and that in itself was a win for the machines since they ended up taking the victory here. All these improvements made in a years time showed how rapidly A.I was advancing, and how technology was going to evolve for years to come.

Process

After the photo was taken, we used the clone stamp on the chess board to remove the hinges. In order to be able to use the original image, it was copied onto a new Photoshop document and the resolution was augmented to 300. The timer on the table was then copied from the

original and pasted onto the new one. It was resized and skewed, and then a mask was placed on just the timer to adjust the saturation and lightness to fit that of the new picture. The resolution for its layer was turned down to 30% in order to erase the parts that overlapped with our chess pieces, and then restored to 100%. The computer screen was also copied from the original, resized and skewed to match the tilt of our screen. Kasparov's clipboard, keyboard, and the flags were added in the same fashion.

Then, using the quick selection tool, the outline of the two actors, Xin Han and Shahool, was taken, removing the background from the photo. The radius of the selection, as well as the contrast are altered for a clearer outline. The outline of the image is then added to another blank Photoshop document as a new layer. Then, the using the quick selection tool again, the outline of Kasparov and the IBM representative from the original image was taken out, leaving only the background. Kasparov and the IBM representative are discarded, taking only the background and transforming it into a new layer, and then combined with the layer of the outline of Xin Han and Shahool in a single Photoshop file. Due to the deviation between Kasparov's and the IBM representative's original position, a very obvious white outline, as well as several other white patches and inconsistencies, are shown when the two layers are combined. Several steps are taken to remove the white outline. First, the outline is changed to a black color, which is less obvious for the eye to detect, and easier to edit. Then, the size of both layers are slightly distorted and adjusted to minimize the black void that fills up the difference between the two layers. Finally, to remove some of the black void, the lasso tool is used to obtain sample textures from the original image and then used to fill up the void. The samples are taken multiple times to patch up any inconsistencies in the final photo. The photo is then slightly cropped to remove the regions that could not be recreated.
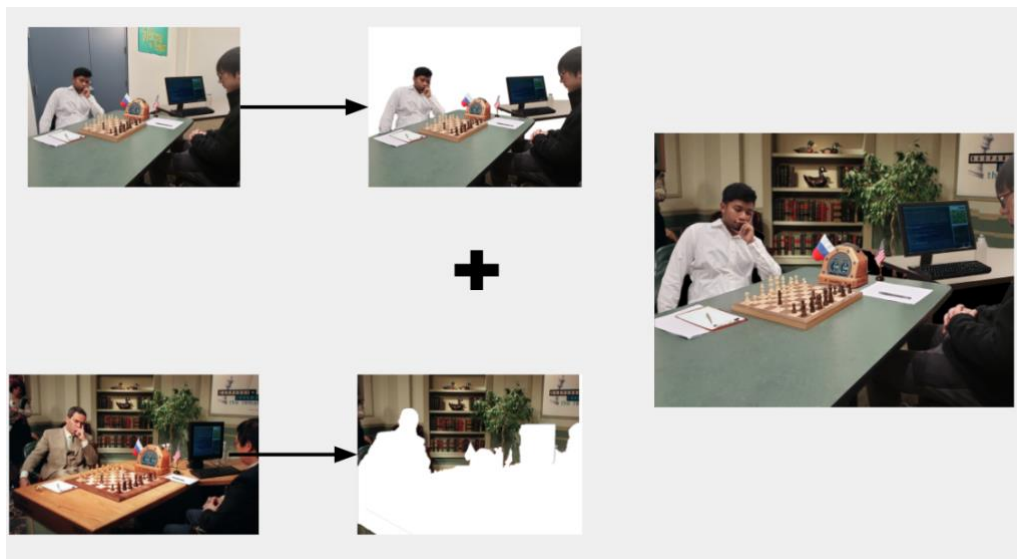
Finally, the color of the table and clothing are altered to appear more similar to the original. The clone stamp was used to bring the edge of the bookcase down to meet the edge of our table. The clone stamp and paint brush tool were used to fine tune the edges of the original's background and make it blend better with our picture. The border of the wall behind the monitor and IBM's representative was also edited with the clone tool to make it continuous rather than jagged cuts and pastes. The clone tool was used on a lower opacity to get rid of the white pages that had been left around the clipboard after it was pasted on top. The clone tool was used to fill in the gap behind the timer.

Bibliography

Announcements, Chess.com. "Kasparov vs. Deep Blue | The Match That Changed History."
   Chess.com, Chess.com, 12 Oct. 2018, www.chess.com/article/view/deep-blue-kasparov-chess.

Arbuckle, Alex. "20 Years Ago, a Computer First Beat a Chess World Champion." *Mashable*,
Mashable, 10 Feb. 2016, mashable.com/2016/02/10/kasparov-deep-blue/#mlsbENRdoEqy.

Harding, Luke, and Leonard Barden. "From the Archive, 12 May 1997: Deep Blue Win a Giant
   Step for Computerkind." *The Guardian*, Guardian News and Media, 12 May 2011,
   www.theguardian.com/theguardian/2011/may/12/deep-blue-beats-kasparov-1997.

Press, Gil. "The Brute Force Of IBM Deep Blue And Google DeepMind." *Forbes*, Forbes
Magazine, 8 Feb. 2018, www.forbes.com/sites/gilpress/2018/02/07/the-brute-force-of-deep-
blue-and-deep-learning/#1fa27d6449e3.

Team Members

Gisela Urbano - Photoshop + Report
gisela.urbanohilario@stonybrook.edu

Xin Han Huang - Actor + Photoshop + Report
xinhan.huang@stonybrook.edu

Shahool Al Bari - Actor + Report
shahool.albari@stonybrook.edu

Senal Gooneratne
senal.gooneratne@stonybrook.edu