Keywords: **Section 101, abstract idea, conventional**

General: **A claim reciting a digital camera having multiple image sensors and a digital image processor that produces an enhanced image using two images acquired by the multiple image sensors is patent ineligible because the components are considered well-known, routine, and conventional.**

Yanbin Yu, Zhongxuan Zhang v. Apple Inc.
Appeal no. 2020-1760
Fed. Cir. June 11, 2021

Yanbin Yu, Zhongxuan Zhang v. Samsung Electronics Co., Ltd. et al.
Appeal no. 2020-1803
Fed. Cir. June 11, 2021

I. Facts

In 2016, Yanbin Yu and Zhongxuan Zhang ("Yu") brought suit, asserting that Defendants Apple and Samsung, infringed U.S. Patent No. 6,611,289 ("the '289 Patent"), which relates to a digital camera having two image sensors that are each used to produce a respective digital image and a digital image processor that enhances a digital image produced by one sensor with the digital image produced by the other sensor. For example, claim 1 recites:

> [a]n improved digital camera comprising:
>
> a first and a second image sensor closely positioned with respect to a common plane, said second image sensor sensitive to a full range of visible color spectrum;
>
> two lenses, each being mounted in front of one of said two image sensors;
>
> said first image sensor producing a first image and said second image sensor producing a second image;
>
> an analog-to-digital converting circuitry coupled to said first and said second image sensor and digitizing said first and said second intensity images to produce correspondingly a first digital image and a second digital image;

> an image memory, coupled to said analog-to-digital converting circuitry, for storing said first digital image and said second digital image; and
>
> a digital image processor, coupled to said image memory and receiving said first digital image and said second digital image, producing a resultant digital image from said first digital image enhanced with said second digital image.

The defendants filed a motion to dismiss, which the district court granted after concluding that each asserted claim was patent ineligible under § 101. In particular, the district court held that the asserted claims were directed to "the abstract idea of taking two pictures and using those pictures to enhance each other in some way." The court explained that "photographers ha[ve] been using multiple pictures to enhance each other for over a century" and that the asserted claims lack an inventive concept, noting "the complete absence of any facts showing that the[] [claimed] elements were not well-known, routine, and conventional." Yu appealed.

II. Issue

1. Did the District Court err in holding that the claims patent eligible under § 101?

III. Discussion

1. No. The court agreed with the district court that the claims are directed to the abstract idea of taking two pictures and using one picture to enhance the other in some way. The court explained that "given the claim language and the specification" claim 1 is directed "to a result or effect that itself is the abstract idea and merely invoke[s] generic processes and machinery" *rather than* "a specific means of method that improves the relevant technology." Further, the court note that the result is "producing a resultant digital image from said first digital image enhanced with said second digital image," and the court asserted that the remaining limitations (i.e., the first and second image sensor, the two lenses, the analog-to-digital converting circuitry, the image memory, and the digital image processor) are conventional camera components to effectuate the resulting "enhanced image." Additionally, the court noted that Yu did not dispute that the idea and the practice of using multiple pictures to enhance each other has been known for centuries.

Yu argued that the asserted claims are "directed to a patent-eligible improvement in digital camera functionality" by "providing a specific solution" to problems such as "low resolution caused by low pixel counts" and "inability to show vivid colors caused by limited pixel depth." Yu pointed to portions of the specification to support that the asserted advance is the particular configuration of lenses and image sensors. However, the court reasoned that the solution to these problems was the abstract idea itself, namely, to take one image and enhance it with another.

Yu also argued that the specification supports the contention that the asserted advance in the claims is the particular lenses and image sensors. The court noted that even a specification full of details about an invention may nonetheless conclude with claims that claim nothing more than a broad law or abstract idea underlying the claims and further noted that each time the specification of the '289 patent suggests that a particular configuration is the asserted advance over the prior art, it does so in a four-lens, four-image-sensor configuration in which three of the sensors are color-

specific while the fourth is a black-and-white sensor. For example, col. 9, ll. 23-27 of the '289 patent describes:

> [o]ne of the key features of the present multiple sensors is to use the intensity image from B/W sensor 308 to expand the dynamic ranges of images from sensors 302, 304, and 306 so as to increase overall dynamic range of the resultant color images.

Further, col. 10, ll. 17-26 of the '289 patent describes:

> [w]hat sets the present invention fundamentally apart from existing technologies is the use of a black-and-white intensity from the image sensor with a full transparent filter or no filter at all. The B/W/ image sensor can capture full information including details that may be missed by those color image sensors. The intensity image from the B/W image sensor is then repeatedly used in the image processing processes in the DSP chip that subsequently produces a high quality and film-like digital image.

The court noted that claim 1 requires only a two-lens, two-image-sensor configuration in which none of the image sensors must be color. For example, the second sensor "sensitive to a full region of visible color spectrum" is considered a black-and white sensor, and the first sensor is not necessarily one of the color image sensors described above. The court explained that the mismatch between the specification statements that Yu points to and the breadth of the claim underscores that the focus of the claimed advance is the abstract idea and not the particular configuration discussed in the specification. Accordingly, the court concluded that claim 1 of the '289 patent is directed to an abstract idea.

Turning to step two, the court asserted that claim 1 does not include an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible invention. The court explained that the *claimed* hardware configuration itself is not an advance and does not itself produce the asserted advance of enhancement of one image by another. In particular, the court noted that the "recited physical components behave exactly as expected according to their ordinary use." Yu argued that the unconventional nature of the digital camera architecture is demonstrated by the prosecution history because the claims were allowed over multiple prior art references and that the hardware configuration is vital to performing the claimed image enhancement. The court contended that conventional computer equipment can be "vital" to an advance that is still abstract, but not suffice to avoid ineligibility at *Alice* step two. Further, the court pointed to *Two-Way Media* in support of the conclusion, stating "[t]he main problem that [Yu] cannot overcome is that the *claim*- as opposed to something purportedly described in the specification- is missing an inventive concept." Accordingly, the court concluded that claim 1 did not recite an inventive concept that would confer patent eligibility at step two.

IV. Dissent

Judge Newman argued that claim 1 is not directed to the general idea of enhancing camera images but is directed to "a digital camera having a designated structure and mechanism that perform specified functions." Judge Newman added that "[t]he camera of the '289 patent may or may not ultimately satisfy all substantive requirements of patentability, for this is an active field of technology. However, that does not convert a mechanical/electrical device into an abstract idea." Additionally, Judge Newman noted that the purpose of Section 101 is to define the subject matter of matters while Section 102 covers the conditions relating to novelty. Judge Newman stated "the majority now holds that the '289 camera is an abstract idea because the camera's components were well-known and conventional and perform only their basic functions. That is not the realm of Section 101 eligibility. The Supreme Court disposed of this position in *Diehr*." In conclusion, Judge Newman added "[t]he fresh uncertainties engendered by the majority's revision of Section 101 are contrary to the statute and the weight of precedent, and contrary to the public's interest in a stable and effective patent incentive.

V. Conclusion

The court affirmed the district court's ruling that the '289 patent is directed to the abstract idea of enhancing one image with another image and does not recite an inventive concept, and thus, is directed to patent ineligible subject matter.