

DOUBLE CLICK

A Monthly Publication of Macintosh Users East (MaUse) February, '91

Scanners: Trading Resolution for Tones

Part 2

Jim Alley(MNS)

"A 4X4 matrix has the potential to represent 16 tones."

Think of it this way: first, we assume that 300 dpi is the fixed resolution of the printer. Now we have to overlay the matrix over that figure. Dividing four into 300, we come up with 75. What this means is that in order to get 16 tones, we have to sacrifice that 300 dpi resolution that we got with line art. Since each printer dot can only be white or black, we have to use a cluster, or matrix, of printer dots to give the appearance of a gray area.

As the illustrations in this article show, this compromise translates into slightly less sharpness, but with the added benefits of smooth gray tones that reinforce the feeling that a photograph can give. If you look closely, you can see the individual dots. The printer resolution is nominally the same, but the individual dots appear to be larger and farther apart in a halftone than they were in line art.

The Halftone Disadvantage

Now that we have seen that a Halftone is made up of black dots placed in a particular arrangement and spacing, what does this mean for us as we wend our way toward that printed page (or slide)? Because of the fixed spacing, a halftone will suffer greatly if its scale (overall size) is changed. Imagine that a particular area of a halftone is made up of dots in a particular pattern—such as a black followed by three whites, with this pattern repeating over a certain area. We can see that this area would appear as approximate 25% gray (one black dot for every three white dots). Now imagine that you reduce the

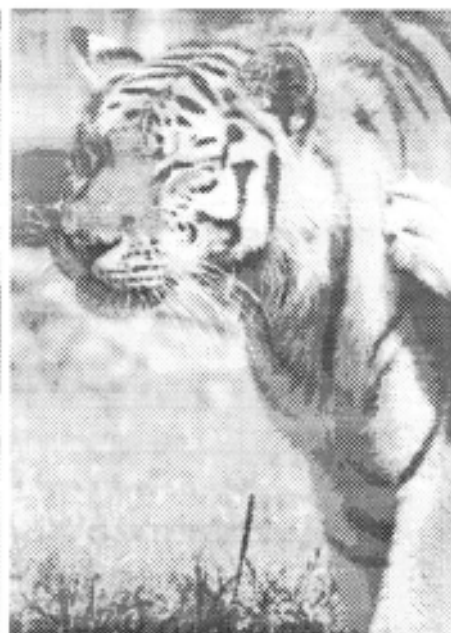


**TIFF saved as Halftone
without Grey Scale**

picture to three-quarters of its original size. Because digital halftones are fixed in size, the computer will have to throw out one dot out of every four. At best, this will cause the tonality to change; if a white dot is discarded, there will be two white dots for every black dot, yielding an approximately 33% gray where we previously had 25%. On the other hand, if the single black dot is eliminated, we will have a solid white area. Clearly, either outcome is unacceptable.

If you scan images at exactly the size you will print them, a halftone will do just fine. But reducing a halftone can result in all sorts of distortion. See the accompanying illustrations.

"One main advantage of true grayscale is shown here: both images have been reduced to 83% of their



**TIFF with Grey Scale
information**

original size in order to fit the column width. The grayscale version fares well in this process, but the 1-bit TIFF file shows extreme distortion. This is due to the fact that the TIFF file (any 1-bit file, for that matter) is composed of fixed dots. The spacing of these dots is disturbed by changing the scale."

The Grays Have It

However, this distortion does not happen if the file is in true grayscale format. If all of the dots in an area are gray, then discarding one dot will have little, if any, effect.

Near the beginning of this article I stated that I did not feel the need for true grayscale in a scanner if my final output was LaserWriter or screen. Let me now explain how I resolve those

continued on page 3

MaUse

Macintosh Users East



President's Message: February '91

by Jim Foster

Boy, a whole month rolls around fast sometimes! In my new role as President, I'm somehow finding all those barbs and criticisms that I used to hurl at the Executive coming back in my direction. This month, we're running a little late again with Double-Click but this time yours truly is much to blame; Stuart has the blank pages ready and is patiently waiting for me to fill my portion of them.

MaUse Executive meetings are frequently a source of many imaginative ideas for new initiatives, such as a Fund-Raising Committee, such as getting more (paid) advertising into Double-Click, such as getting more (any) females onto the Executive, and such as simply finding more ways to attract more people to the User Group. My role, as President, often boils down to setting priorities. We have far more good ideas than we have the resources (people) to implement them. And many good ideas, once analyzed in detail, would require an unreasonable amount of work to implement. So, to any of you out there who have offered ideas in good faith and don't see them being implemented, my response is twofold. First of all, if you feel strongly enough about your idea, be prepared to get out there and DO it! Secondly, I would say that our priorities at this time should be modest: to gradually increase our membership throughout 1991 to NINETY-ONE members, and to continue to organize meeting agendas which are as helpful and informative as we can.

On the latter point, we think we finally have secure access to an overhead projecting display unit for our meetings. This should allow us to be much more confident about lining up professional demo's of new software, knowing that the presenter will have good equipment to use. We are also close to finalizing arrangements to hold our March meeting at a new location which should be interesting as a one time event and possible a precursor to a major change in venue.

Like water dripping on a stone, we make a little more progress each month. Look forward to seeing you all at the February meeting.

Coming Up 1991 Feb 27

Recovering from the Big Crash
What to do when your files are
lost and your Hard Drives goes
down the tubes.

**SUM, Norton Utilities,
MacTools etc.**

Back to Basics by Jim Foster

March 27

Demo Filemaker Pro
by Dave Hudon from Claris

April 27

WordPerfect on the Macintosh

Meetings

Held at the **St. Thomas Anglican Church**
in **Brooklin.**

Open for

Shareware Sales at 7:00 pm
Meetings start at 7:30 pm

SPECIAL NOTE:

We are hoping the March Meeting
will be at GM Main Office on
Colonel Sam Drive
Stay tuned for confirmation

Month	Exec	Mem	Month	Exec	Mem
Jan.	8	28	July	2	24
Feb.	5	27	Aug.	6	28
March	5	27	Sept.	3	25
April	2	24	Oct.	1	23
May	7	22	Nov.	5	27
June	4	26	Dec.	None	None

Scanners

two apparently conflicting statements.

I often use the Apple Scanner to prepare images which will be printed at 300 dpi. Because I want flexibility in sizing the images later, I always scan at 100%. (Scanning at higher percentages is not allowed.) I choose the Halftone method, rather than Grayscale, and save the images in the TIFF format. Then I load the image into Letraset's ImageStudio program and save the file back in PICT or RIFF format. Here's why:

Even if no manipulation of the image is done, there are two important differences in the resulting ImageStudio file. First, the image has been converted into true grayscale format—this is an automatic feature of the program. Second, the physical size of the file has shrunk considerably.

The conversion to true grayscale means that the image now prints at the default resolution (dot size, frequency, and angle) of the output device, rather than at the fixed spacing and resolution of a halftone. The grayscale image can also be resized without noticeable distortion.

The physical reduction in file size represents a significant savings in disk space—reductions of 60% to 90% are common.

My own preference in output files is ImageStudio's own RIFF format. Unfortunately, some programs do not support this format. I use

DesignStudio and am very pleased with the results. If your page layout program does not recognize RIFF files, you can save in PICT format. You may also be using other image manipulation programs, such as Digital Darkroom, Adobe Photoshop, or Letraset's ColorStudio, all of which can accomplish similar results.

As Clear as Black and White

If all of this seems confusing to you, don't feel alone; it is confusing. There are no cut and dried answers to the questions of TIFF vs. RIFF and halftone vs. grayscale. If I've learned anything, though, it's that a grayscale program like ImageStudio or Digital Darkroom can be a big help, even if you don't learn all of its subtleties. Simply being able to see the image onscreen in grays can be a big help in visualizing the results. But don't feel that a grayscale scanner is a necessity. I use the Apple scanner, but I seldom use it in its grayscale mode—the files are just too big to handle comfortably. I

automatically run my halftone scans through ImageStudio to convert them to grayscale while simultaneously reducing their file size. Even if I don't use any of ImageStudio's wonderful tools, I've gained a lot.

MUG NEWS SERVICE,
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by Jim Alley, Professor of Computer Art, The Savannah College of Art and Design (Photographs by the author.) reprinted from Mac Monitor, newsletter of The Savannah Macintosh Users Group

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Double Click is produced monthly, where possible, by and for members of Macintosh Users East (Mause), an Apple Macintosh Computer User's Group serving the Durham Region and environs, for the purposes stated in this constitution. There is no charge for this publication. Articles published in Double Click may be reproduced for non-commercial purposes by other Macintosh User Groups or interested parties without prior permission. Any other reproduction of any part of this newsletter may be done only with the written permission of the author(s)

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This month's issue has been produced with Quark Xpress 3.0. The typeface used in our feature articles is Palatino.

January Meeting Review

Power Charge

For those of you who missed it, the January 23, 1991, membership meeting in Brooklin featured an excellent presentation by April Nabeeh of Power Charge.

Power Charge is an Oshawa based firm which specializes in toner cartridge recharging for Apple LaserWriters, other brands of PC Laser printers/copiers, and devices such as microfiche printers which also utilize laser printing technology.

April provided a brief history of her company, describing the early pitfalls of laser cartridge recharging through to today's very reliable and successful operation. Power Charge is set up to handle individual users of single printers, who only need service once a year or less, as well as large installations of multiple printers where so many cartridges are going back and forth that a simple accounting system needs to be set up to keep track of how many times each cartridge has been refilled. There is a practical limit on how many times a cartridge can be refilled before its mechanical components have truly worn out and Power Charge can keep track of all this for the client.

Also featured was a "tour" of the inside of an Apple LaserWriter IINTX, complete with tips and hints for maintenance that users can do on their own. Just like an automobile, a little knowledge regarding basic cleanliness and maintenance can go a long way to reducing overall expense and downtime.

Finally, April demonstrated a new product offered by Power Charge called LaserColor™. This is a product which allows you to place spot colour on your printed documents using your regular black and white Laser printer. It certainly isn't going to put the colour printer manufacturers into a panic but it is certainly something that every user should have in their kit bag for those "pressure" situations where you need to put a little colour into a small number of paper originals as quickly as possible.

MaUsE appreciates the time which April took out of her schedule to be with us and, of course, the doughnuts she brought along! Anyone who would like to get more information can contact April at Power Charge, 267 Seneca Avenue, Oshawa, Ontario, L1G 3V7 (416) 433-1106.

MaUsE PD 91/02

Demo Talking Moose A fully functional demo of The Talking Moose, an hilarious utility which causes your Mac to talk to you. Gives excellent idea of what the commercial product is like. Contains all files required to get your Mac chatting.

MacinTalk Some Sounds. A collection of sounds, hopefully all humorous, which will get you started using Sound Mover also provided on this disk.

Sound Mover 1.70c Version 1.70c of SoundMover, a useful utility for manipulating and playing sounds in the same manner as Font/DA Mover handles fonts and desk accessories. Shareware.

SMP Disk Manual Sound Mover What's new in Sound

TidBITS Issues #37, 38, 39, and 40 of the weekly TidBITS HyperCard stack, full of up to date articles and reviews regarding Macintosh products. Free. TidBITS#37, TidBITS#38, TidBITS#39, TidBITS#4

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