

OCR and the Vestigial Aesthetics of Machine Vision

.....

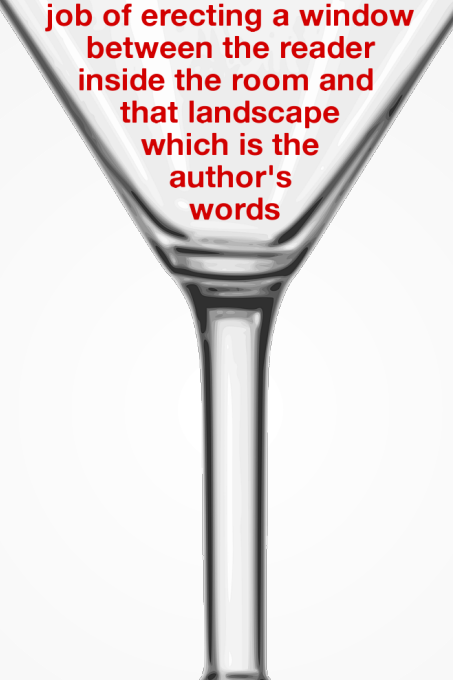
zach whalen

university of mary washington

www.zachwhalen.net // @zachwhalen

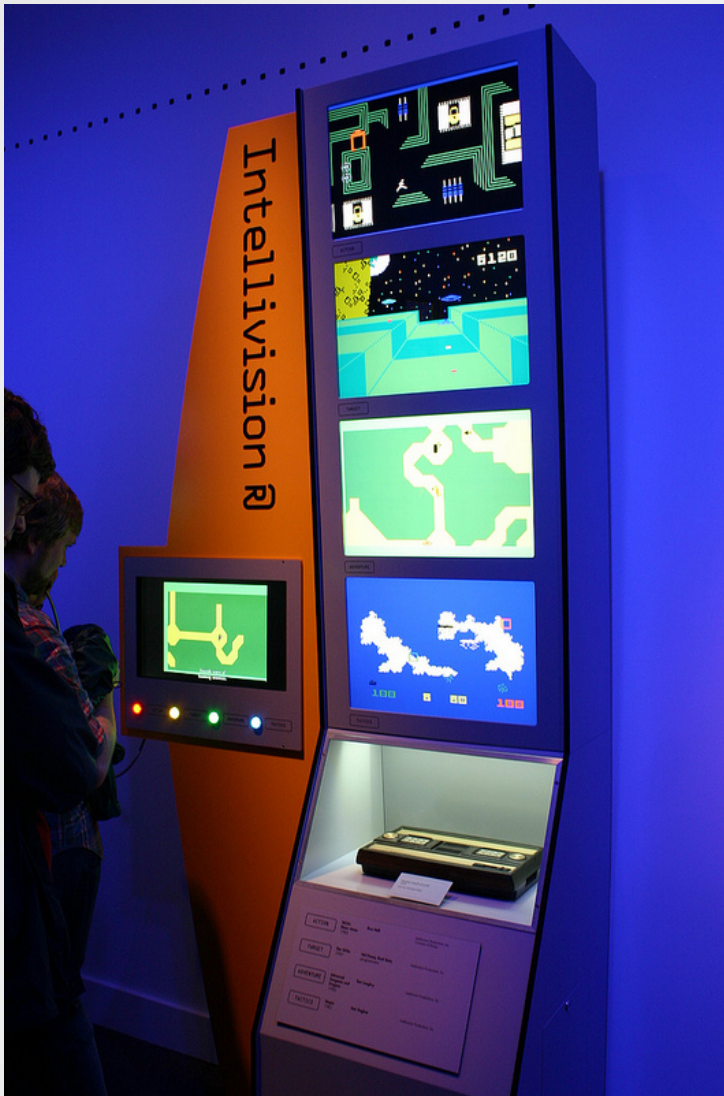
OCR-A
USASI X3.17-1966

.....
OCR-A, defined in USASI (later ANSI) standard X3.17-1966, published as a font by the American Type Foundry in 1968.



**The book typographer has the
job of erecting a window
inside the reader
and that landscape
which is the
author's
words**

.....



.....

Examples of OCR-A in use at Smithsonian American Art Museum's *The Art of Video Games* exhibit.

“The Art of Videogames” by Flickr user Christa Burns (CC BY NC 2.0)

“Video Game Consoles: Intellivision” by Flickr user Ryan Somma (CC BY 2.0)

The Norwich line steamboat train, from New-London for Boston, this **morning** ran off the track seven miles north of New-London.

morning

morning overtook

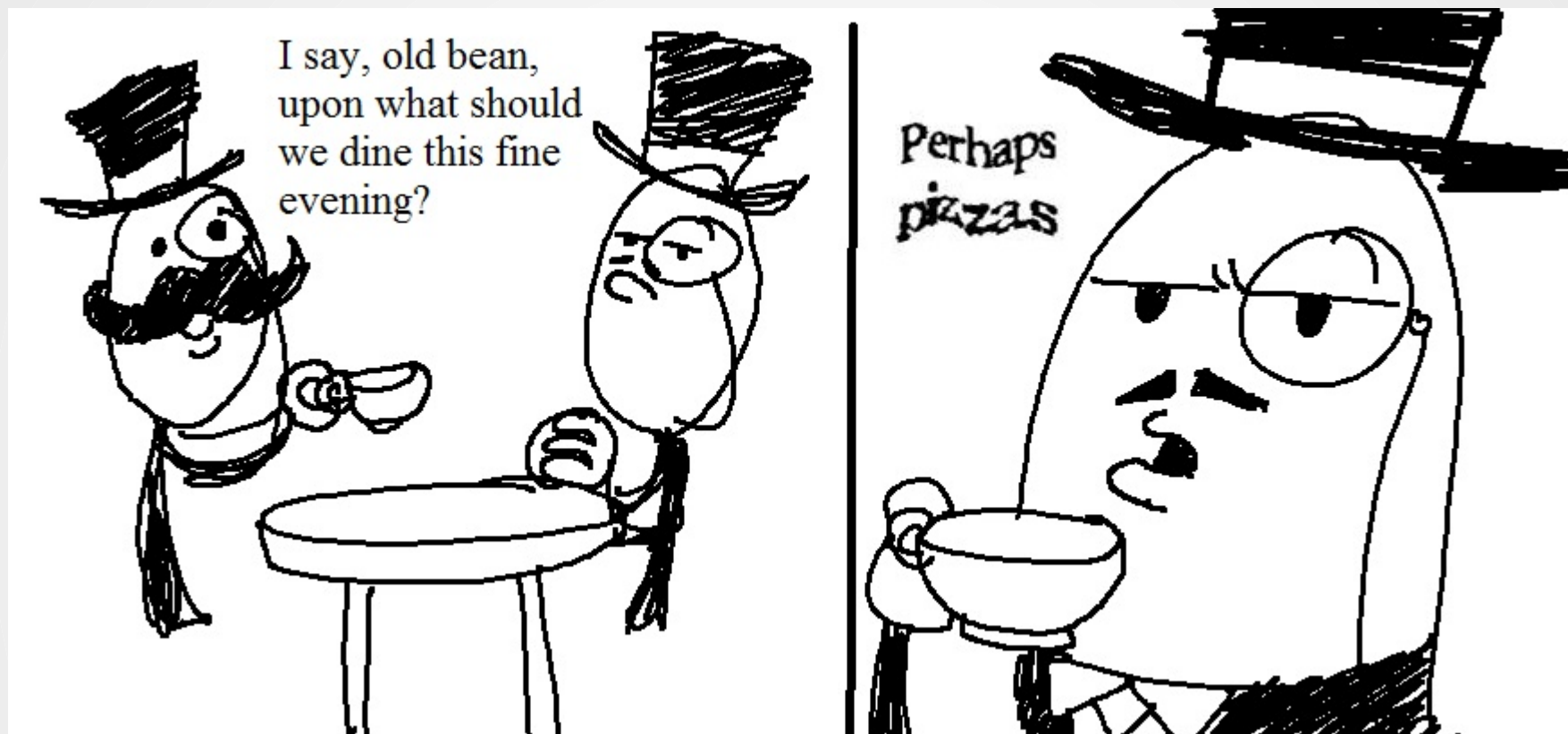
Type the two words:



.....

ReCAPTCHA's basic process.

Von Ahn, L. et al. "reCAPTCHA: Human-Based Character Recognition via Web Security Measures." *Science* 321.5895 (2008): 1465–1468. Web. 2 Jan. 2013.



.....

“Perhaps pizzas.” Captcha Art is one byproduct of OCR's remainders.

<http://www.captchart.com/post/973151838/perhaps-pizzas-submitted-by-tweedledep>



.....

Sometimes the content of a reCAPTCHA juxtaposition take a darker turn.

“Inglip.” Inglipnomicon Wiki. Web. 2 Jan. 2013.
<<http://inglipnomicon.wikia.com/wiki/Inglip>>

CHAP.
CXXXVIII.
1786.

the property of this state, or of a citizen or citizens thereof, or of some corporate body or charitable institution within the same, or of some person who is not a citizen of any of the United States, describing also in said oath or affirmation, the number, place, and date of each certificate, with the sum mentioned therein, the name of the person to whom given, and also the name of the Commissioner who subscribed the same; the said Justice of the Peace is hereby authorized and required to certify under his hand, to the Commissioner of the Continental Loan Office of this state, that the owner or possessor of such certificate or certificates did take the said oath or affirmation before him; and the said Commissioner of the Continental Loan Office, upon his receiving any certificate or certificates of liquidated debts of the United States, together with such certificate of a Justice of the Peace as aforesaid, or upon his administering the said oath or affirmation himself to the person offering the same, which he is hereby authorized and empowered to do, or if any Continental Loan Office certificate, obtained from the Loan Office of this state, shall be produced to him without such oath, he is hereby required to settle and adjust the interest due thereon to the last day of the year One Thousand Seven Hundred and Eighty-four, and to give certificates for the same, conformably to such instructions as he shall receive from the Board of Treasury respecting the form of certificates to evidence the interest due as aforesaid, and as to the checks the said Board of Treasury shall from time to time judge necessary to prevent counterfeited certificates of debts from obtaining a settlement of interest, and to detect counterfeit evidences of interest; and the said certificates of interest on Loan Office certificates and other liquidated debts of the United States, shall be receivable by the Collector of each county of this state, on account of the monies to be raised by this act, in the proportion of three fourths to one, every taxable being held to pay his part of the Continental tax in the said proportion; and the said Collector shall pay the same into the hands of the Treasurer of this state in lieu of so much money, which said certificates, or so many of them as shall not exceed the sum of Seven-

to be taken in
payment of
taxes, in the
proportion of
three fourths to
one of specie,

and the same,
not exceeding
\$1,500.00. in
value, to be paid

teen

CHAP.
CXXXVIII.
1786.

over by the
Treasurer to the
Commissioner of
the Continental
Loan Office, in
lieu of so much
money.

teen Thousand Five Hundred and Twenty-one Pounds Ten Shillings in value, shall be paid over by the said Treasurer to the Commissioner of the Continental Loan Office, as part of the said sum of Twenty-three Thousand One Hundred and Thirty-two Pounds Five Shillings, or to such person as shall be duly authorized by the Board of Treasury of the United States to receive this state's quota of the Continental taxes.

SECT. 19. And forasmuch as the said Collectors may receive more specie than the aforesaid proportion of one fourth to three, and it is but just and necessary that the whole of such specie should be paid over to the State Treasurer for the purposes herein directed, *Be it therefore enacted*, That the said Collectors respectively, shall give to all and every of the taxables aforesaid, receipts for the taxes by them paid, specifying therein how much in specie, and how much in interest certificates shall have been so paid by such taxable, and the amount of specie so received shall by the several Collectors be paid into the state treasury, and at the times of making the payments of the first and second portions of the tax by this act to be raised as aforesaid, the said Collectors respectively shall lay before the Auditor duplicates, containing true accounts thereof, specifying as well the names of the persons from whom the same was received, as also the sums of money in such certificates so received by him as aforesaid, to the truth of which said duplicates the said Collectors respectively shall make oath or affirmation before the said Auditor, which oath or affirmation he is hereby empowered and required to administer, and that before he shall adjust a settlement with any such Collector as aforesaid. *Provided always*, That nothing herein before contained shall be deemed or construed to prevent any one taxable from paying the taxes of divers persons with one or more of his interest certificates, so that the proportion of one fourth in specie at the least, in all such cases is preserved.

Collectors to
give receipts,
specifying the
sums paid in
specie, and in
interest certifi-
cates.

shall lay before
the Auditor du-
plicates contain-
ing the same
specification;
and shall account
therefor upon
oath.

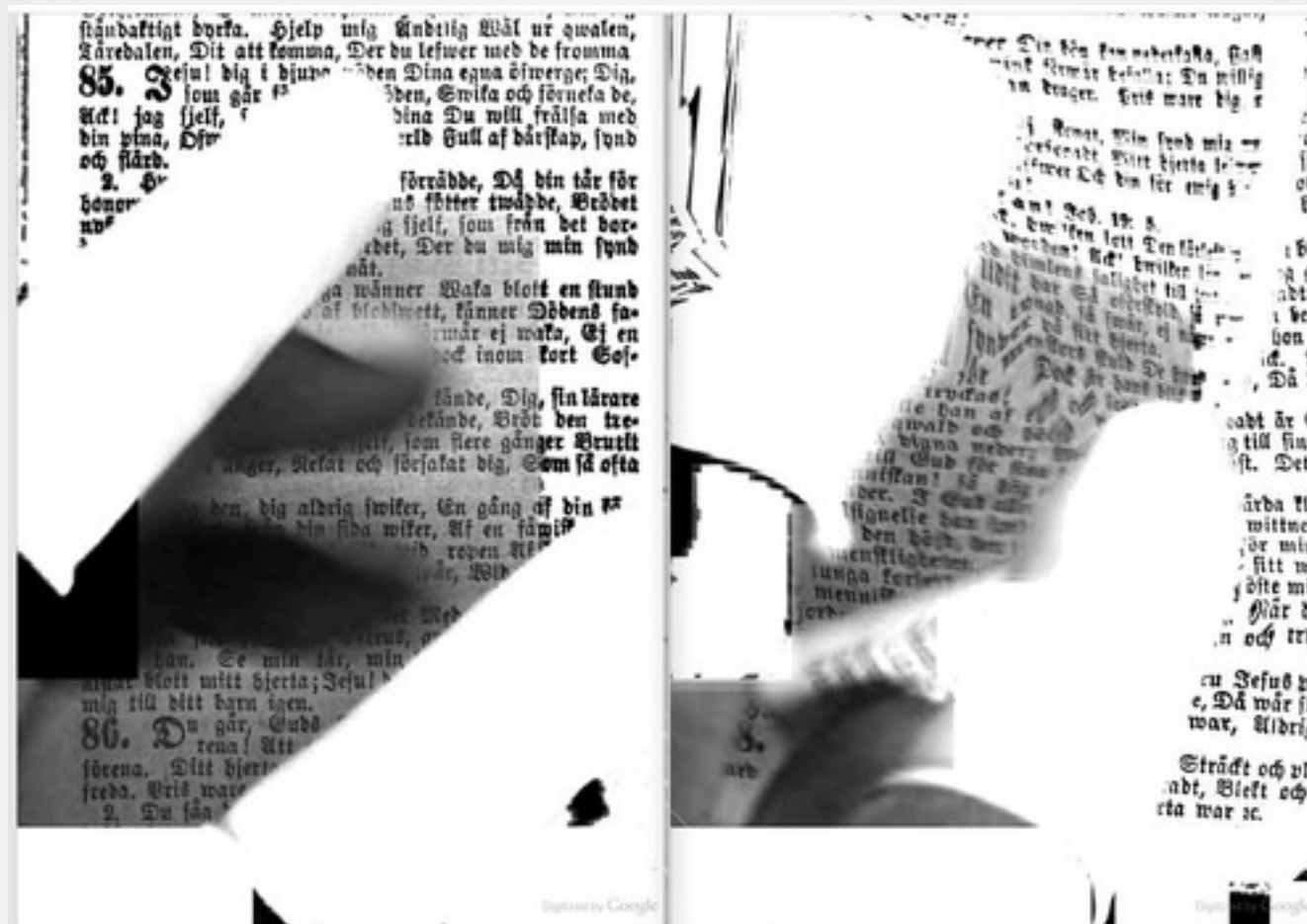
Provide.

SECT. 20. *And be it further enacted*, That in case this state's quota of the said certificates to be issued as aforesaid, shall not be in the hands of the State Treasurer on or before the first day of January, which will be in the year One Thousand Seven Hundred and Eighty-

Deficiency of
certificates shall
be collected in
specie.

“The halo of a removed flower. From p. 862-63 of *Laws of the State of Delaware*”.

Wilson, Krissy. “The Halo of a Removed Flower.” *The Art of Google Books / Tumblr.com*. Blog. 6 Dec. 2012. Web. 2 Jan. 2013. <<http://tumblr.co/ZAdOfxYnLxxB>>



“From p. 64-65 (?) of *Swenska Psalm-boken: Af Konungen Gillad och Stadfästet* är 1819 (1870). Original from the University of Michigan. Digitized June 12, 2007.”

Wilson, Krissy. “I Have No Idea What’s Going on Here.” *The Art of Google Books / Tumblr.com*. Blog. 7 Dec. 2012. Web. 2 Jan. 2013. <http://tumblr.co/ZAdOfxYrYrLR>

The two-faced 200

IT READS...

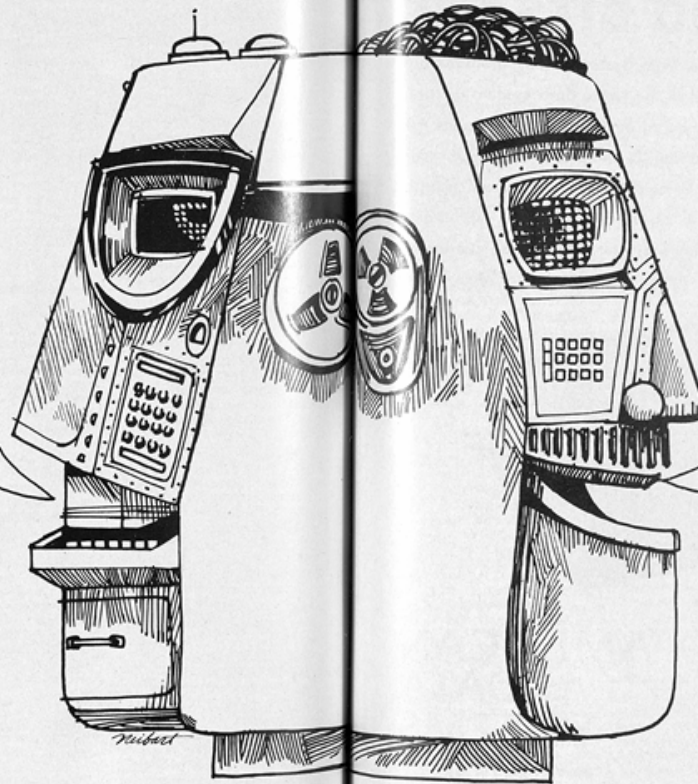
THIS TYPEFACE, OCR-A, DESIGNED TO BE READ BY A MACHINE. OUR NEW 200 KNOWS IT AND READS IT. IN CERTAIN APPLICATIONS, IT SERVES A PURPOSE WELL. UNFORTUNATELY THIS FONT IS DIFFICULT FOR PEOPLE TO READ.

SCAN-DATA GIVES YOU, THE USER, FONT SELECTION. THAT MEANS YOU BUY A MACHINE TO HANDLE THE WORK YOU'RE DOING NOW. IF MOST OF THE INFORMATION YOU READ COMES FROM A COMPUTER, NATURALLY THE FONT YOU SELECT IS LIKELY TO BE A COMPUTER PRINTOUT FONT... 1403. IT MAKES SENSE.

AS YOUR BUSINESS GROWS, ADD NEW TYPEFACES AS THE WORK REQUIRES.

THE TURN-KEY TO OPTICAL CHARACTER RECOGNITION IS RELATING TO PEOPLE.

MACHINES READ. PEOPLE READ. SEE OUR OTHER FACE.



It reads and you read...

this elite typeface easily. So will your people. You were weaned on this clear, common style of print. If your input has to be read by people, why not standardize on elite? No daily re-acclimation.

No penalty in dollars or performance.

Consider OCR-B. It's pretty good for people. And the 200 reads it beautifully.

The 200 reads original source documents in the font you need. If your application must be optimized for machine reading, it handles "machine faces" with ease. If human reading is a factor, elite or OCR-B is as easy for the machine as it is for you.

Incidentally, if your system requires hand printed data as input the 200 can read hand-print too.

The 200 is a real man/machine system. It will meet your criteria at lower cost than systems that read ONLY highly stylized fonts.

For source data automation, write or call.

Scan-Data Corporation

800 East Main Street, Norristown, Pennsylvania 19401
(215) 277-0900
8844 West Olympic Boulevard, Beverly Hills, California 90211
(213) 274-8081
Real Time Systems, LTD, London, England.

“The two-faced 200”. Another view of the human / computer problem.

Scan-Data Corporation. “The Two-Faced 200.” *Datamation* July 1969 : 146–147. Print.

A B C D E F G H I J K L M
 N O P Q R S T U V W X Y Z
 0 1 2 3 4 5 6 7 8 9
 . , : ; = + / \$ % ' " & |
 ' - { } % ? [\ ^ _
 Û Ñ Ä Ø Ö Å £ ¥

Size B

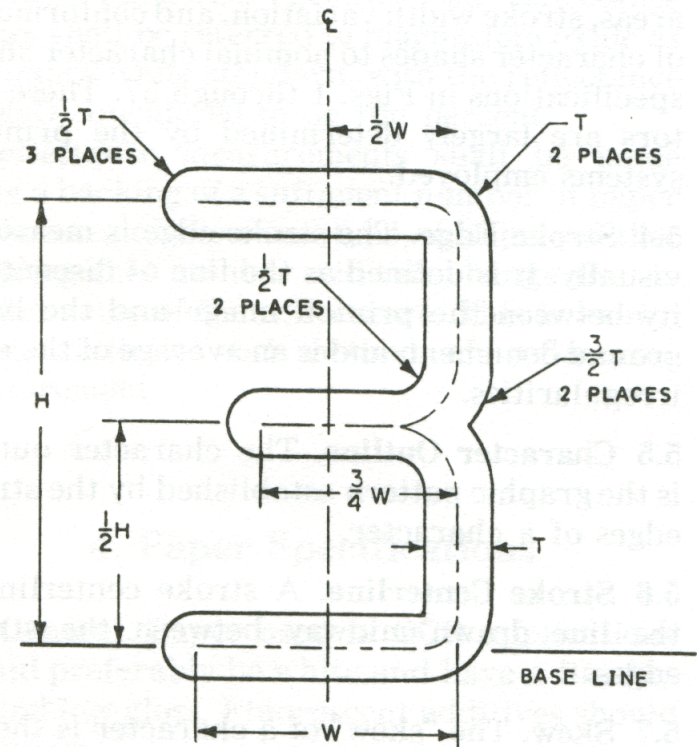


Fig. 3
Number Three

A selection of the original character set from OCR-A, and details for a numeral 3.
 Scanned from X3.17-1966.

“USA Standard Character Set for Optical Character Recognition. USASI X3.17-1966.”
 18 July 1966 : n. pag. Print.

1 1 I |

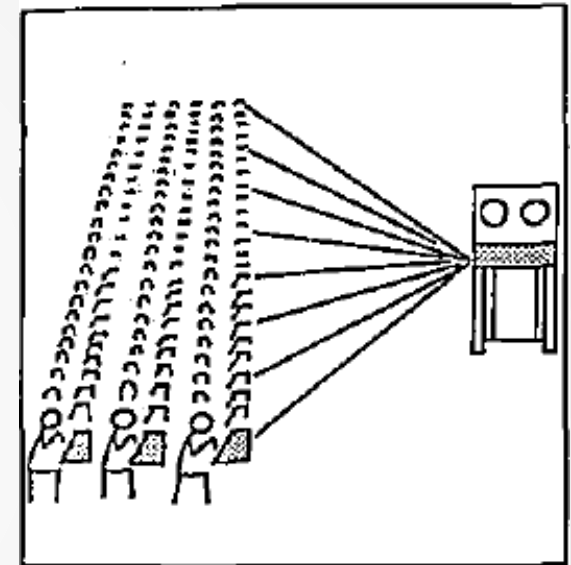
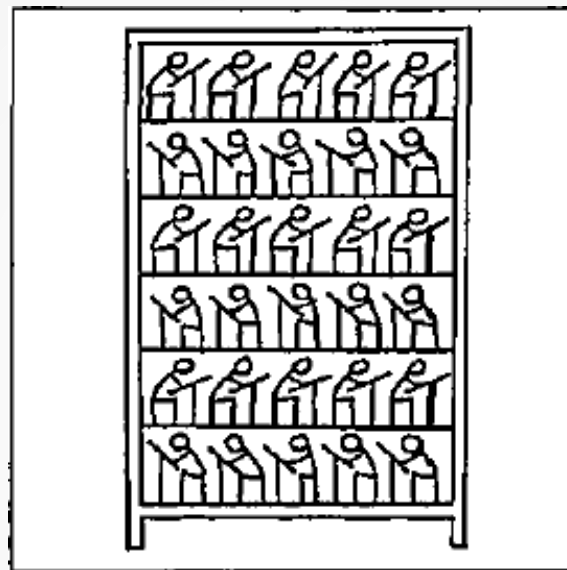
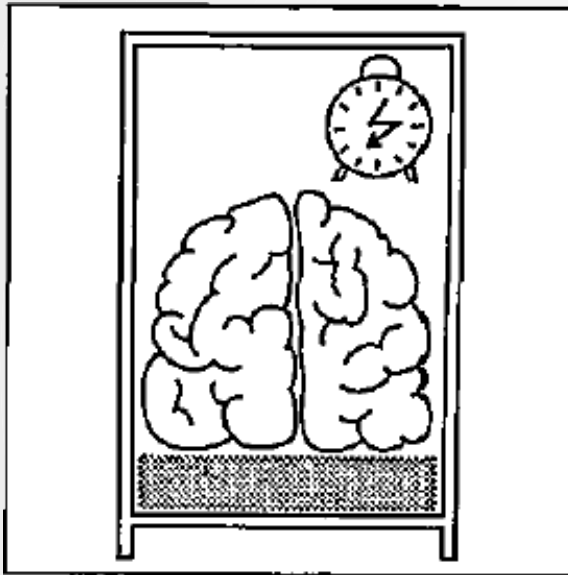
1, l, l, and | in OCR-A.

O O D Q G C

O, 0, D, Q, G and C in OCR-A.

.....

Comparing some key characters.



.....

Frutiger's illustrates the human problem in computing.

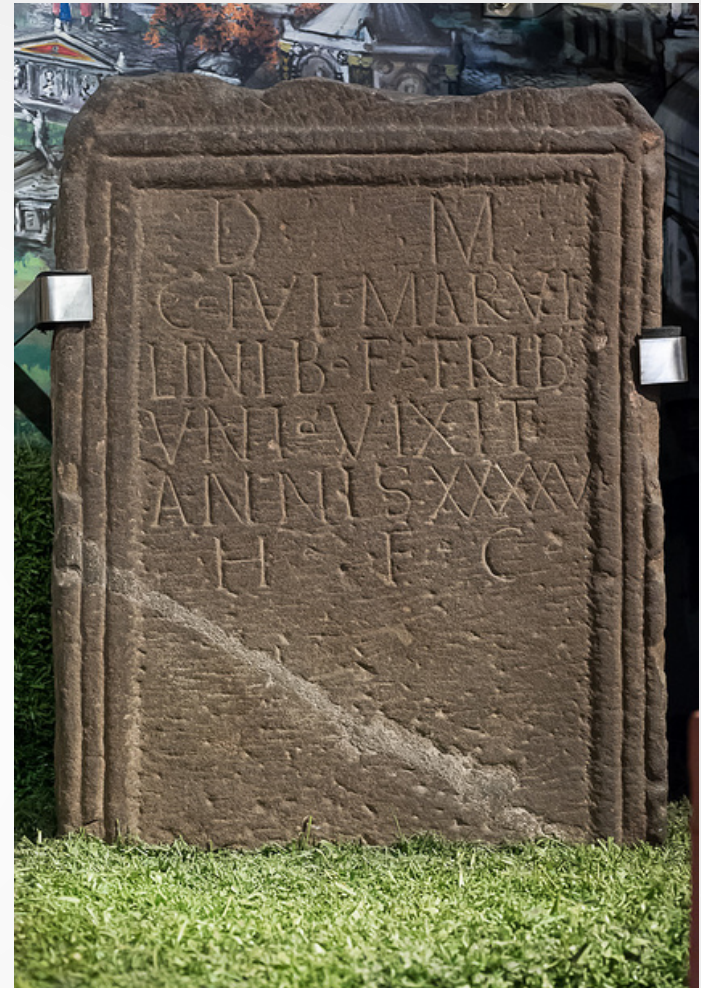
Frutiger, Adrian. "OCR-B: A Standardized Character for Optical Recognition." *The Journal of Typographic Research* 1.2 (1967): 137–146. Print.

A	a	B	b	C	c	D	d	E	e
F	f	G	g	H	h	I	i	J	j
K	k	L	l	M	m	N	n	O	o
P	p	Q	q	R	r	S	s	T	t
U	u	V	v	W	w	X	x	Y	y
Z	z	!	@	#	\$	%	^	&	*
0	1	2	3	4	5	6	7	8	9

.....

A sample of characters in OCR-B.

"...the problems of
chiseling into stone..."



.....
Rabinow, Jacob. "Whither OCR? And Whence?" *Datamation* July 1969 : 38 – 42. Print.

"Roman Tombstone, Grosvenor Museum, Chester" photo by Flickr user Xavier de Jauréguiberry (CC BY-NC-ND 2.0)

"... and the windows in our buses have their vertical lines tilting forward, and for the same reason ..."



.....
Rabinow, Jacob. "Whither OCR? And Whence?" *Datamation* July 1969 : 38 – 42. Print.

Lartigue, J H "Car Trip, Papa at 80 kilometers an hour." 1913.

"Toronto 8385" by Flickr user Frank Denardo (CC BY SA 2.0)

"Suppose the aerodynamic drag were lower for blunt, square objects -- what would have happened to the streamlining of our toasters and washers?"

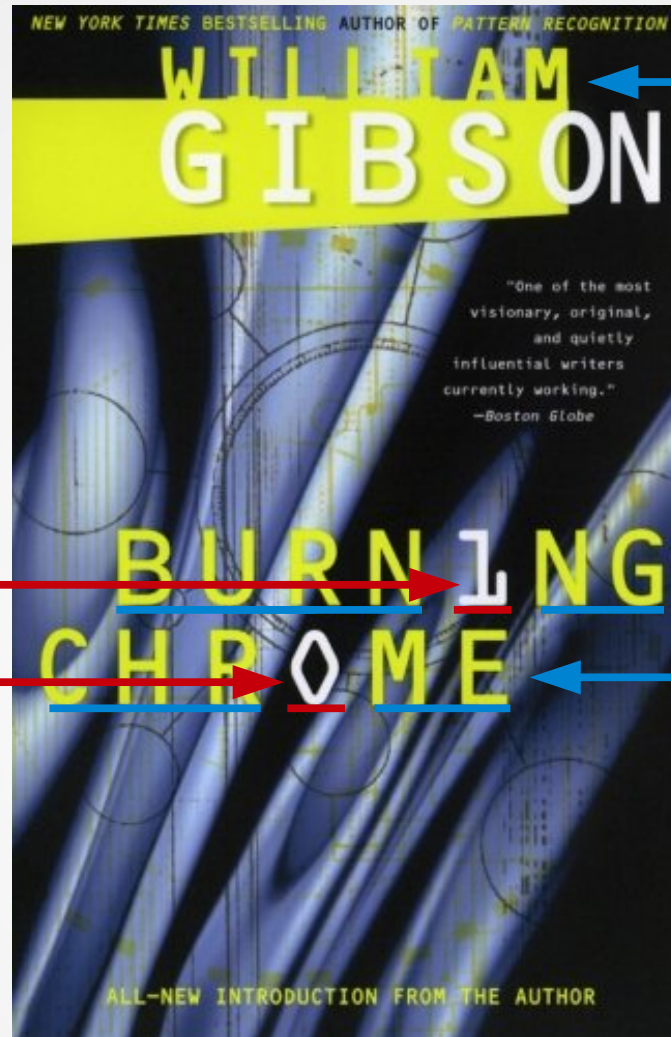


.....

Rabinow, Jacob. "Whither OCR? And Whence?" *Datamation* July 1969 : 38 – 42. Print.

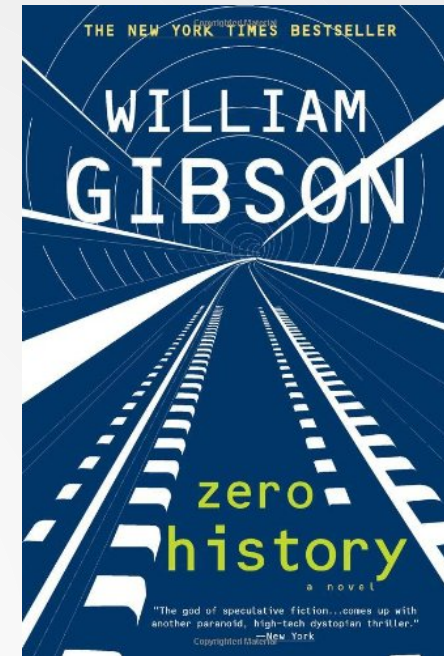
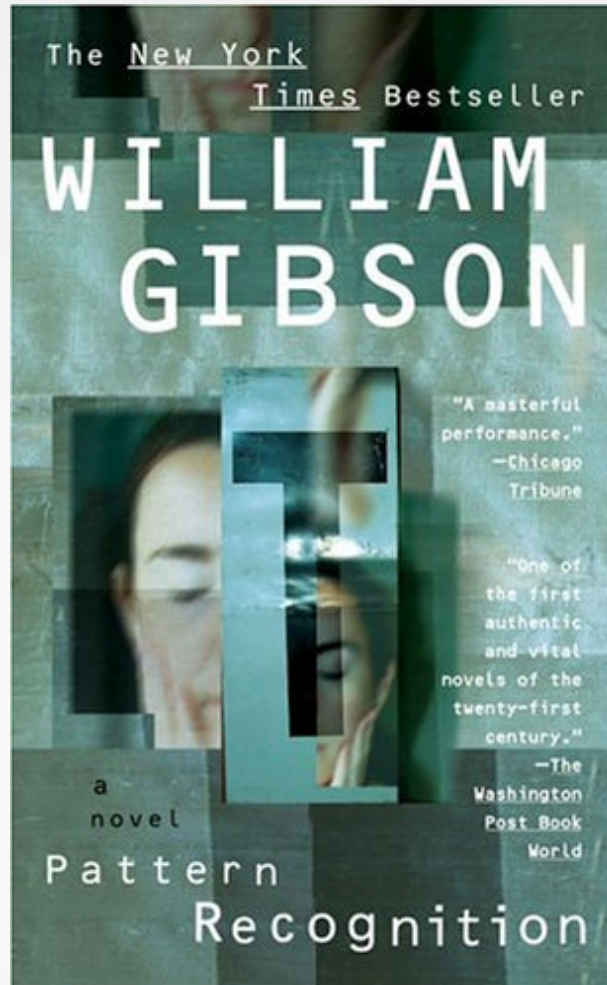
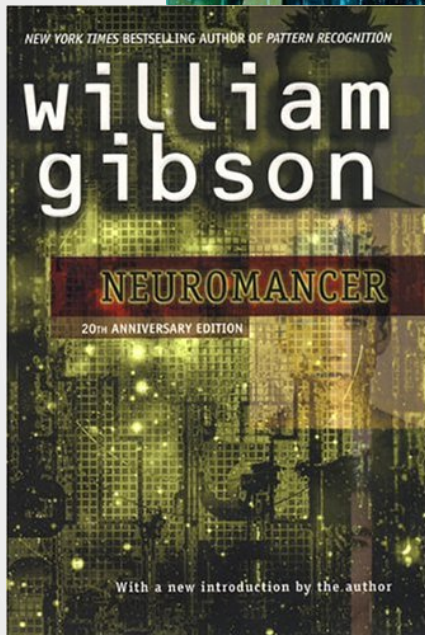
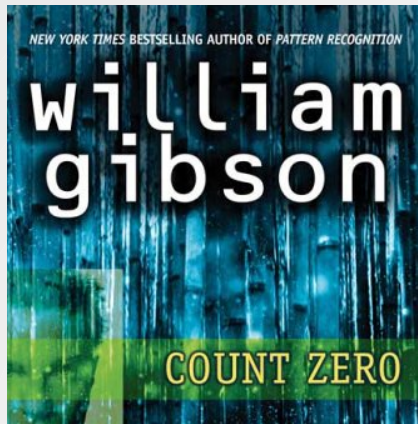
"Toaster1.jpg" uploaded to WikiMedia Commons by user Peng. (CC BY-SA 3.0)

OCR-A

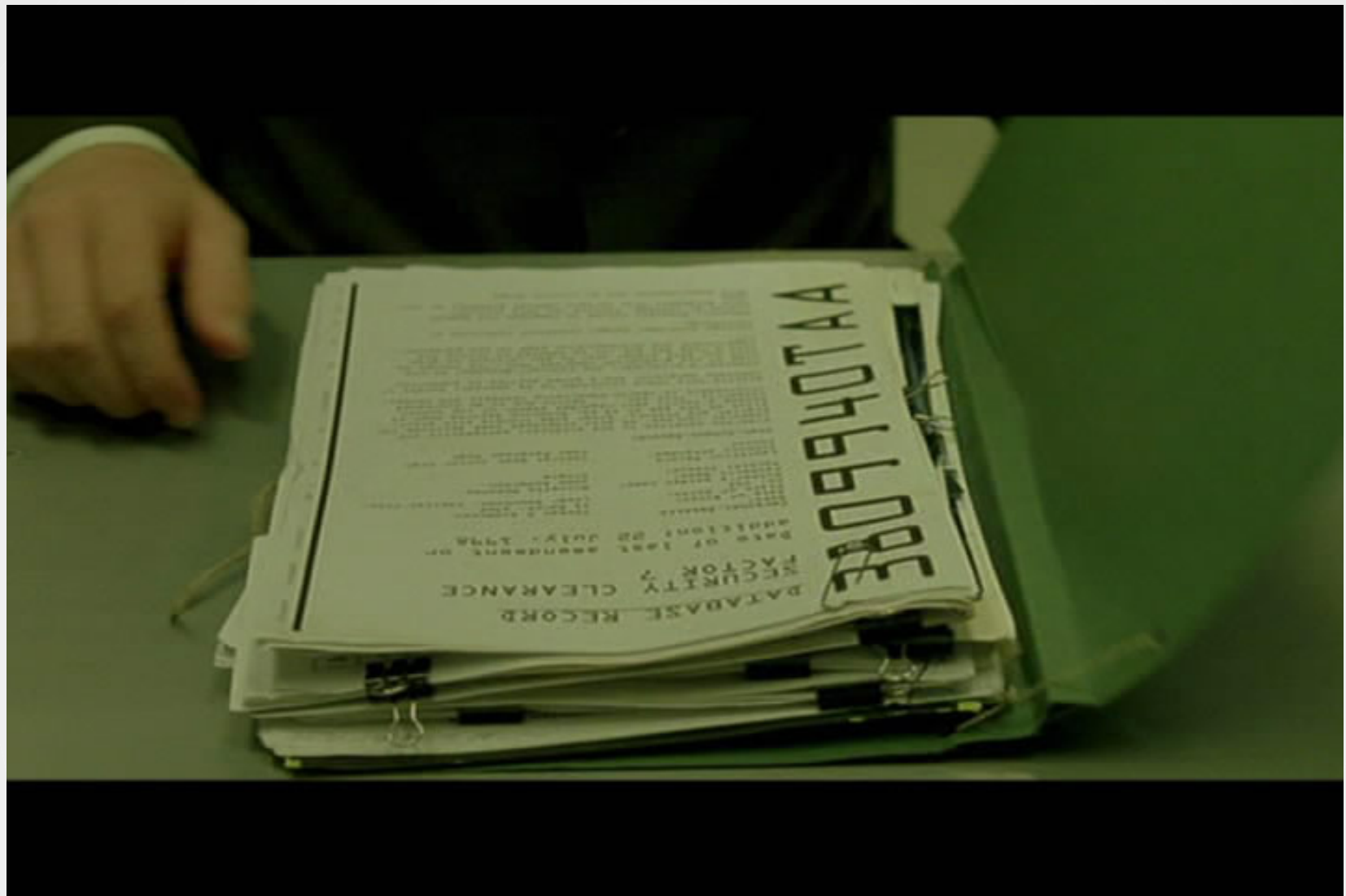


OCR-B

.....
Gibson, William. *Burning Chrome*. Harper Voyager, 2003. Print.



Other Gibson Covers.



.....
Wachowski, Larry, and Andy Wachowski. *The Matrix*. Warner Home Video, 1999. DVD.

OCR and the Vestigial Aesthetics of Machine Vision

zach whalen
university of mary washington
www.zachwhalen.net // @zachwhalen

**END OF
LINE.**