

# 13 Oona's Puzzle Corner!

by Oona Räisänen

## 13.1 Mystery Message

Peter sits in the front of the classroom. One day during class this message was passed to him.

>ΠΟ >ΟJLΠΟΓ ΓΕΘΓVLLJ>ΟJ Ξ< VΓΘL  
ΠΟΓΘΘΓ. ΓΕ<ΓJ <Γ< ΓΟ> Γ> ΠJLΓ  
ΓΓΓ ΞΘ VΠΘΘ ΠΟ ><ΓΘV >Γ >ΠΟ  
ΠΓJLΓΠΓΓΓΓΓ? <Γ<Γ ΞJ>Π ΠΓΞΘVΓΓΓ  
VΠJΓΓ ΠΘ ΓΓΘΘ ΓΘ ΓΘ><ΓΘ.

## 13.2 Bit Flip Trouble

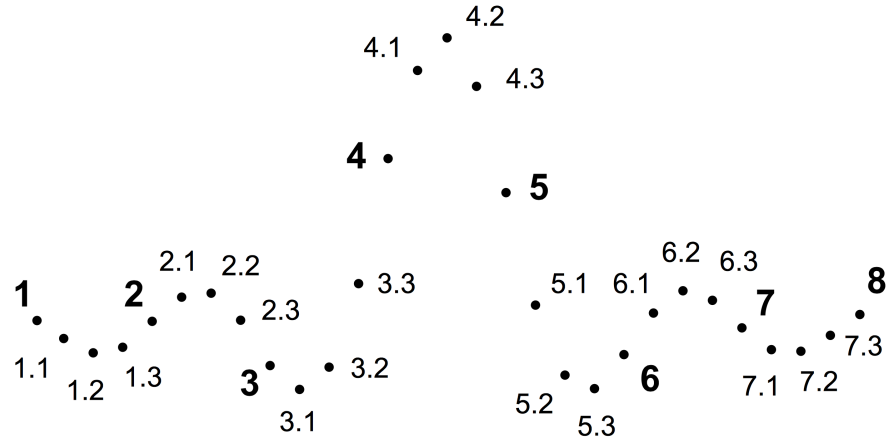
Mary keeps two copies of a precious file. But one of the copies has been corrupted in memory due to a recent Rowhammer attack. Can you find all the flipped bits in the samples below? Can you even tell which one is the original?

000000: 2550 4446 2d31 2e33 0a31 2030 206f 626a 2550 4446 2d31 2e33 0a31 2030 a06f 626a  
0000010: 0a3c 3c20 2f54 7970 6520 2f43 6174 616c 0a3c 3c20 2f44 7970 6520 2f4b 6174 616c  
0000020: 6f67 202f 5061 6765 7320 3220 3020 5220 6f67 a02f 5061 6765 7320 3220 3020 5220  
0000030: 3e3e 0a65 6e64 6f62 6a0a 3220 3020 6f62 3e3e 0a65 6e64 6f62 6a0a 3220 3020 6f62  
0000040: 6a0a 3c3c 202f 5479 7065 7320 2f50 6167 6a0a 3c3c a02f 5479 7065 7321 2f50 6167  
0000050: 6573 202f 4b69 6473 205b 2033 2030 2052 6573 202f 4b69 6473 205b 2033 2030 2052  
0000060: 205d 202f 436f 756e 7420 3120 3e3e 0a65 205d 202f 436f 756e 7420 3120 3e3e 0a65  
0000070: 6e64 6f62 6a0a 3320 3020 6f62 6a0a 3c3c 6e64 6f66 6a0a 3320 3020 6f62 6e0a 3c3c  
0000080: 202f 5479 7065 202f 5061 6765 202f 5061 202f 5479 7065 202f 5061 6765 202f 5061  
0000090: 7265 6e74 2032 2030 2052 202f 5265 736f 7265 6e74 2032 2030 2052 202f 5245 f36f  
00000a0: 7572 6365 7320 3c3c 202f 466f 6e74 203c 7572 6365 7321 3c3c 202f 466f 6e74 203c  
00000b0: 3c20 2f46 3120 3c3c 202f 5479 7065 202f 3c20 2f46 3120 3c3c 202f 5479 7065 202f  
00000c0: 466f 6e74 202f 5375 6274 7970 6520 2f54 466f 6e74 202f 5375 6274 7970 6521 2f54  
00000d0: 7970 6531 202f 4261 7365 466f 6e74 202f 7971 6531 202f 4261 7365 466f 6e64 202f  
00000e0: 4172 6961 6c20 3e3e 203e 3e20 3e3e 202f 4172 6961 6c20 3e3e 203e 3e20 3e3e 202f  
00000f0: 436f 6e74 656e 7473 2034 2030 2052 203e 436f 6e74 256e 7473 2034 2030 2056 203e  
0000100: 3e0a 656e 646f 626a 0a34 2030 206f 626a 3e0a 656e 646f 626a 0a34 2030 206f 626a  
0000110: 0a3c 3c3e 3e0a 7374 7265 616d 0a42 540a 0a3c 3c3e 3e0a 7374 7265 616d 0a42 540a  
0000120: 2f46 3120 3430 2054 660a 3430 2037 3030 2f06 3120 3430 2044 620a 3430 2037 3030  
0000130: 2054 640a 2853 7475 6666 2074 6f20 6275 2054 640a 2853 7475 6666 2074 6f20 6275  
0000140: 793a 2920 546a 0a30 202d 3830 2054 640a 793a 2920 546a 0a30 202d 3830 2054 640a  
0000150: 282d 2044 4452 3429 2054 6a0a 3020 2d38 082d 2044 4452 3329 2054 6a0a 3020 2d38  
0000160: 3020 5464 0a28 2d20 6861 7264 2064 7269 3020 5474 0a28 2d20 6861 7264 2064 7269  
0000170: 7665 2920 546a 0a45 540a 656e 6473 7472 7665 2921 546a 0a65 540a 656e 6473 7472  
0000180: 6561 6d0a 656e 646f 626a 0a74 7261 696c 6561 6d0a 656e e46f 626a 0a74 7261 696c  
0000190: 6572 0a3c 3c20 2f52 6f6f 7420 3120 3020 6572 0a3c 3c20 2f56 6f6f 7420 3120 3020  
00001a0: 523e 3e0a 2525 454f 460a 523e 3e0a 2525 454f 460a

Hint: !noisiv oerets ruoy esU

### 13.3 Interpolation Colorization

Sadie really likes to convolve with this kernel. But she only took with her a travel pack containing a limited set of discrete samples. Use a colored pencil to connect the integer-valued dots (1, 2, 3, ...). Then repeat using a different color but include also the decimal-valued dots. What do you see? How is this related to interpolation and sampling rates? If you recognize the kernel, how would you help Sadie generate even more points?



### 13.4 Hacker Jumble

Max has been trying to memorize some topical words for his upcoming infosec specialist appearance in the news. But now they're all lying on his hotel room floor and he has trouble finding them. How many words can you find? What has happened to them during the night that makes them so difficult to see?

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F V B G F N G U A O E B B R B
U F V S E R C H F E G E N F Z
N H N E A F N G R R U N F X J
P N J F N J J E R B S P U V V
F Y R U E U L B R Z B Y Y N A
R Q B E A V V J Z E E R R R Q
R R L Z E Q R U N R E S L A B
F J G Y J A Z N W Q F N Z C J
H B Y N Q H A Z T C V A N G F
T R Y Q R U G Z B Y E S Q N G
O A W R R C U R Y Q V V V E R
R F Y H Q F F E G R B P F E A
V Q O S E R N X B B G Y B Q N
U N P X V A T G R N Z G A V A

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