

# THE SOURCE

ISSUE 5  
*Space Invader*

Cory Arcangel



2015

Arcangel Surfware

[www.arcangelsurfware.biz](http://www.arcangelsurfware.biz)



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Space Invader

46 Cory Arcangel, 2004

<http://www.coryarcangel.com>

Credz: Code by Alex Galloway of the Radical Software Group

51

Requirements: Atari 2600, Space Invader cartridge, CRT television, 4K EEPROM, 2600 2K/4 K PCB (Assembled w/Socket).

A mod of Atari game Space Invaders where all the invaders – except one – have been deleted.

56 "Everything bad that can happen to a person has happened to me" – Paris Hilton<sup>12</sup>

00000000 85 2b a5 84 30 00 29 0f aa ca 10 fd b1 f8 aa b1 |.+..0.).....| 00000680 a9 00 85 9e a9 04 20 8b fe 4c 75 f8 a5 ca 4a b0 |.....Lu...J.|  
 00000010 ee 85 1b b1 f0 85 1c b1 f2 85 1b b1 f4 85 1c b1 |.....|. 00000690 03 4c db f7 ad 82 02 29 03 c9 02 d0 06 20 b2 fe |.L....).....|  
 00000020 f6 85 1b 8a 85 1c 85 1b c6 89 88 48 68 68 b1 |.....HhHh.| 000006a0 4c 44 f7 ad 82 02 29 02 f0 09 a5 aa 85 ed 30 3e |LD....).....>|  
 00000030 f8 aa b1 ee 85 1b b1 f0 85 1c b1 f2 85 1b b1 f4 |.....|. 000006b0 4c 47 f7 a9 b1 85 c7 24 aa 30 0e a5 aa 29 b0 09 |LG....\$....)|  
 00000040 85 1c b1 f6 85 1b 8a 85 1c 85 1b a5 89 c9 04 90 |.....|. 000006c0 80 85 ed 20 c0 fe 4c 44 f7 e6 ed a5 ed c9 0f 90 |.....LD....)|  
 00000050 04 a9 00 b0 03 ea a9 02 8d 1f 00 88 10 ae c8 84 |.....|. 000006d0 1d ad 82 02 4a a9 0d 90 02 a9 02 85 ed a5 98 29 |.....J....)|  
 00000060 1b 84 1c 84 2b 84 1b 84 1c 85 02 c6 89 a5 89 c9 |.....|. 000006e0 f3 85 98 a5 dc 18 69 91 f0 02 69 70 85 dc a5 aa |.....i..ip...|  
 00000070 04 90 04 a9 00 b0 03 ea a9 02 85 1f a4 80 a5 02 |.....|. 000006f0 09 80 85 aa a5 dc 4a 4a 4a 44 85 ec a8 b9 4b fd |.....JJJJ...K.|  
 00000080 05 03 0a 30 06 ea ea ea 10 07 a5 82 19 dc fc |.....|. 00000700 85 db a5 98 29 cf 19 52 fd 85 98 a9 aa 85 e7 a9 |.....R....|  
 00000090 85 82 85 2c 88 6c 8c 10 09 a9 00 85 25 85 26 4c |.....%.&L| 00000710 a2 85 e9 a0 00 98 38 65 dc c9 0a 90 06 c8 e9 0a |.....8e....|  
 000000a0 09 f1 20 e9 fd 84 80 b9 92 00 85 f8 a4 f4 46 f8 |.....F.| 00000720 4c 19 f7 79 39 fd 85 e8 a5 dc 93 69 a9 aa 90 02 |L.y9....c..|  
 000000b0 90 07 b9 d6 fc 65 8b d0 04 48 68 a9 00 95 fa e8 |.....e..Hh.| 00000730 a9 a1 85 e6 a5 dc c9 10 b0 02 c6 ee c9 09 b0 04 |.....|. 00000740 69 a1 85 e8 4c 75 f8 a5 ca 4a b0 03 4c db f7 a5 |i...Lu...J..L..|  
 000000c0 e8 30 eb c6 89 a5 89 c9 04 90 04 a9 00 b0 03 ea |.....|. 00000750 c7 d0 f9 24 98 30 12 a5 aa 29 07 d0 0c a5 db 29 |.....\$.0....)|  
 000000d0 a9 02 85 1m a5 c8 29 38 4a 4a ca c5 80 10 6e a5 |.....).8JJJ.| 00000760 10 f0 58 a5 d5 c9 ec b0 03 4c d8 f7 a5 db c9 14 |.....L....|  
 000000e0 c8 29 07 0a aa a5 c8 2a 2a 29 03 a8 b9 1e fd |.....\*\*\*)..| 00000770 f0 08 c9 90 do 09 24 aa 50 21 24 0d 4c 9d f7 a5 |.....S.P!\$.L..|  
 000000f0 95 ee 4c fa f0 a2 05 ca 10 fd 65 2b 20 b2 fd a2 |.....L....+| 00000780 db 10 0a c6 d9 do 06 24 aa 50 14 70 1e 24 aa 70 |.....S.P.p.S.p|  
 00000100 06 ca 10 fd a0 09 4c 00 f0 c6 8e 30 06 20 b2 fd |.....L....0..| 00000790 16 a5 db 29 20 f0 04 24 od 10 04 24 0c 30 39 a5 |.....\$.S....09.|  
 00000110 4c 09 f1 24 98 70 03 4c b2 f1 a5 dd 85 06 a9 01 |L..\$.p.L..| 000007a0 98 29 fb a2 00 10 0a 24 od 30 2d a2 01 a5 98 09 |.....\$.0....|  
 00000120 85 8e a9 00 85 ef 85 f1 85 f3 a9 ab 85 ee a9 b4 |.....|. 000007b0 04 85 98 a0 00 20 af fb 4c d8 f7 a0 01 a2 01 a5 |.....L....|  
 00000130 85 f0 a9 bd 85 f2 a9 11 85 02 85 2b 85 f4 a5 85 |.....+.| 000007c0 98 39 de fc d0 01 ca b9 d5 00 c9 ec 90 07 b5 0c |.9....|. 000007d0 30 03 20 af fb 88 10 e5 4c 75 f8 a5 aa 29 07 d0 |.....Lu...)|  
 00000140 85 20 29 ff a8 88 10 fd 85 10 c6 89 a5 89 c9 04 |.....|. 000007e0 f7 a8 51 91 f0 f2 a9 e8 85 ee c5 d2 b0 ea 20 fb |.....|. 000007f0 fd 10 1a 29 03 aa 85 ee a5 ea 4a 4a 8a 38 65 |.....JJ..8e|  
 00000150 a9 02 90 01 4a 85 1f 85 02 85 2a a0 00 a5 85 10 |.....J....\*..| 00000800 ee 29 07 aa bd dc fc 25 eb f0 f2 d0 2f a5 98 29 |.....%.0....)|  
 00000160 02 a5 85 29 0f aa ca ca 10 fd b1 ee 85 1b ea |.....|. 00000810 04 f0 01 c8 a2 05 bd dc fc 25 eb f0 10 a5 9a 18 |.....%.|  
 00000170 b1 f0 85 1b b1 f2 85 1b c6 f4 30 12 a5 f4 4a 90 |.....|. 00000820 69 fd 18 7d 39 fd 99 00 90 06 86 ee ca 10 e6 |i...).9...|  
 00000180 08 c8 a9 20 4a d0 fd f0 e2 20 e9 fd 10 dd a9 00 |.....J....| 00000830 e8 a5 ea 29 10 d0 05 a5 ee 30 01 aa 86 ef bd dc |.....0....|  
 00000190 85 1b 85 02 a5 02 0a 29 80 05 82 85 2b 85 2c 20 |.....|. 00000840 fc 85 f0 a2 ff e8 00 06 0b 2b 5b 92 25 f0 f0 f5 |.....+.%.|  
 000001a0 e9 fd 85 2b 85 02 85 02 c6 8e 30 06 20 b2 fd 4c |.....0..L..| 00000850 a9 3c 65 90 fd 31 fd 85 d2 38 e5 d1 c9 10 90 11 |.<e..1..8e|  
 000001b0 a8 f1 24 98 10 03 4c 82 f2 20 e9 fd 85 2b 85 02 |.....\$.L..+..| 00000860 c9 f1 b0 0d a4 ef a5 9a 79 39 fd 69 04 85 d4 d0 |.....y9.i..|  
 000001c0 a5 fd 85 06 a5 86 85 20 29 af a8 88 10 fd |.....).| 00000870 04 a9 f6 85 d2 a5 aa 29 07 d0 7a 24 98 30 76 a0 |.....).z5.0v.|  
 000001d0 85 02 a5 e0 85 07 a5 87 85 21 29 ff a8 88 10 fd |.....!).| 00000880 ff a5 91 f0 70 c9 d9 ee 90 06 86 ee ca 10 e6 |.....p...|  
 000001e0 85 11 85 02 85 2a 20 e9 fd a9 00 2c 82 02 10 02 |.....\*.| 00000890 b9 ed fc 85 ef a5 ca 29 3f 85 f0 18 65 ef c9 41 |.....)?..e..A|  
 000001f0 a9 05 85 05 a9 00 50 02 a9 05 85 04 a5 98 29 10 |.....P....)| 000008a0 b0 53 a5 ff 00 09 c5 ef 90 4b e5 ef 4c a4 f8 24 |S..\$.K..L..\$|  
 00000200 f0 02 a9 08 5f 45 a5 98 29 10 fd 85 04 a5 98 29 10 |.....|. 000008b0 8b a9 09 70 02 a9 ff 85 8b a9 01 20 7e fe a5 98 |.....p...~|  
 00000210 a5 aa 4a 85 02 90 17 a6 c9 bd 16 fd 85 f8 a9 ff |.....J....| 000008c0 29 02 f0 ff 05 a9 18 65 ee 85 9a c5 8d 90 26 a5 |.....e....&|  
 00000220 85 f9 a5 ca 29 08 do 04 85 f4 85 f6 10 25 a9 00 |.....%).| 000008d0 8d 00 fd 05 a9 38 ee 85 9a c9 17 b0 17 a9 17 |.....8....|  
 00000230 85 f8 a5 ca 4a 4a 4a 5a aa 29 04 ff 08 a9 1e b0 |.....JJJ..| 000008e0 85 9a 58 99 02 85 98 30 0b 24 aa 30 07 a5 90 |.....I..\$.0..|  
 00000240 02 a9 14 85 f4 a5 aa 29 02 f0 08 a9 14 b0 02 a9 |.....|. 000008f0 18 69 05 85 90 a9 05 85 8c a9 0b 38 e5 90 85 8e |.i....8....|  
 00000250 1e 85 f6 a2 09 a0 09 85 02 a9 00 85 05 fd b1 f4 85 |.....|. 00000900 24 98 70 07 a5 8e 18 69 0c 85 8e a2 fb 5b 97 d0 |.....\$.p....|  
 00000260 1b b1 f6 85 1c 8a 4a 8b 1f 85 02 0b 0d 8a 90 fd |.....J....J..| 00000910 0c 6c 8c 5c 8e 18 69 09 85 8e e8 d0 ff 05 a8 10 |.....i....|. 00000920 31 a5 98 29 40 f0 0d 45 98 85 9a 18 69 0c |1..)@..E..i..|  
 00000270 c6 89 a5 89 c9 04 a9 02 90 01 4a 85 1f ca 8a a8 |.....J....| 00000930 85 8e 10 1e a9 00 85 8e a5 98 30 16 09 80 85 98 |.....0....0..|  
 00000280 10 d5 85 02 a9 00 85 04 85 05 85 05 85 1f 85 1b |.....|. 00000940 a4 8c a5 90 18 79 f2 ff 85 90 20 75 fe a9 06 20 |.....y....u..|  
 00000290 85 1c a5 e4 85 09 a5 81 85 10 a2 04 ca 10 fd 85 |.....|. 00000950 7e fe a2 05 a9 01 15 92 ca 10 fb 85 eb a5 eb f0 |.....|^....|  
 000002a0 11 85 2b a9 e0 85 21 85 02 85 2a a9 c0 85 1b 85 |.....+.!.\*.| 00000960 2d 4a b0 18 20 ed fb a9 3a 85 c8 a2 05 56 92 ca |.J....).V..|  
 000002b0 1c a2 04 99 05 1f 85 02 0b 0d 20 08 fe e8 20 08 |.....|. 00000970 10 fb a5 9a 69 10 85 9a 46 eb d0 e1 a2 06 ca bd |.....i....F..|  
 000002c0 fa e5 29 81 fd 2f 24 02 50 06 a9 04 24 aa f0 |.....)./\$.P...\$.| 00000980 dc fc 25 eb f0 a8 92 38 fd 85 8d a5 90 |%.8.9....|  
 000002d0 0b ca 24 03 50 20 a9 02 24 aa d0 1a 05 aa 85 aa |.....\$.P..\$.| 00000990 85 ff a2 04 b5 99 20 67 fd ca d0 ff 8d ad 82 02 29 |.....g....|  
 000002e0 85 c6 20 75 fe a9 06 20 fe 7e ff a5 02 0b 0d 24 |.....u....\$.| 000009a0 08 a8 02 09 f7 09 07 85 ee a2 ff b9 ff fc 45 |.....p...|  
 000002f0 50 04 a9 02 95 ff 45 02 ad 84 02 fd ff 85 1b 85 |.....P....| 000009b0 c7 25 ee 95 e5 c8 e8 30 f3 24 aa 30 04 a5 c7 d0 |%.0.\$....0..|  
 00000300 1c a9 c8 8d 95 02 a9 00 85 ff a1 aa 85 12 ff 5f a5 |.....|. 000009c0 12 a5 c8 29 38 c9 30 d0 a0 5dc 29 08 f0 04 a5 |.).8.0....|. 000009d0 e3 85 e1 a5 de 85 06 a9 00 85 09 a5 e2 85 08 a5 |.....|. 000009e0 ca 4a a2 04 b0 02 a2 00 86 ef b5 d1 ff 85 8d a5 90 |.%.8.9....|  
 00000310 ca 4a 90 02 a2 04 b5 d1 c9 49 90 04 c9 58 90 01 |.....J..L..\$.P&..|. 000009f0 85 81 b5 d2 95 a1 85 91 95 d2 b5 d3 85 81 b5 d4 |.....|. 00000990 85 8f a2 04 b5 99 20 67 fd ca d0 ff 8d ad 82 02 29 |.....g....|  
 00000320 e8 e0 03 90 0c a9 09 85 ff a9 ff 85 f2 a9 ff d0 |.....|. 000009a0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000330 a9 a9 ff 85 ef a9 01 85 f2 a9 f6 95 d1 b5 d3 a0 |.....|. 000009a0 4a 8a 58 99 02 85 98 30 0b 24 aa 30 07 a5 90 |.....I..\$.0..|  
 00000340 03 18 e5 9b 88 18 69 e0 10 fa 69 20 aa b9 13 fd |.....i....i..| 000009b0 12 a5 c8 29 38 c9 30 d0 a0 5dc 29 08 f0 04 a5 |.).8.0....|. 000009c0 12 a5 c8 29 38 c9 30 d0 a0 5dc 29 08 f0 04 a5 |.).8.0....|. 000009d0 e3 85 e1 a5 de 85 06 a9 00 85 09 a5 e2 85 08 a5 |.....|. 000009e0 ca 4a a2 04 b0 02 a2 00 86 ef b5 d1 ff 85 8d a5 90 |.%.8.9....|  
 00000350 85 f0 a4 ef 98 18 65 f2 a8 bd 4c ff 49 ff 31 f0 |.....e..L.I..|. 000009f0 85 81 b5 d2 95 a1 85 91 95 d2 b5 d3 85 81 b5 d4 |.....|. 00000990 85 8f a2 04 b5 99 20 67 fd ca d0 ff 8d ad 82 02 29 |.....g....|  
 00000360 f0 f2 20 ff fd 88 20 8b fd c8 28 20 8b fd a5 ca |.....|. 000009a0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000370 4a b0 03 4c 29 24 82 50 26 a5 c8 29 39 99 39 |.....J..L..\$.P&..|. 000009a0 4a 8a 58 99 02 85 98 30 0b 24 aa 30 07 a5 90 |.....I..\$.0..|  
 00000380 f0 1e a9 39 85 c8 a2 01 55 98 29 04 d0 01 ca a9 |.....|. 000009b0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000390 04 85 c6 1a 24 50 01 4a 95 f4 a9 05 20 8b fe |.....J..S..P..|. 000009c0 12 a5 c8 29 38 c9 30 d0 a0 5dc 29 08 f0 04 a5 |.).8.0....|. 000009d0 e3 85 e1 a5 de 85 06 a9 00 85 09 a5 e2 85 08 a5 |.....|. 000009e0 ca 4a a2 04 b0 02 a2 00 86 ef b5 d1 ff 85 8d a5 90 |.%.8.9....|  
 00000400 84 ef a6 f0 b9 dc fc 35 92 f0 3b 55 92 95 92 a4 |.....5.;U..| 000009f0 85 81 b5 d2 95 a1 85 91 95 d2 b5 d3 85 81 b5 d4 |.....|. 00000990 85 8f a2 04 b5 99 20 67 fd ca d0 ff 8d ad 82 02 29 |.....g....|  
 00000410 ee b9 df a0 01 25 98 02 88 2b fd ff 99 f6 |.....%.+..|. 000009a0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000420 f6 a4 ee 99 d5 00 4c a4 f3 4a b0 2d a5 c8 29 39 |.....L.J..-.|. 000009b0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000430 c9 39 f0 25 95 a9 b4 fd 85 ff a1 85 12 ff 5f a5 |.....|. 000009c0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000440 9e d0 16 f0 08 e6 9e a5 9e c9 98 90 0c a9 b4 85 |.....|. 000009d0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....I..\$.0..|  
 00000450 9e a9 00 85 cc a9 04 85 f6 ad 80 02 a8 0a 0a |.....|. 000009e0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....J....).J|  
 00000460 0a 85 ee 29 20 85 81 a5 db c9 90 do 08 24 aa 50 |.....|. 000009f0 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....|. 00000990 95 d3 a5 81 95 d4 a5 ca 4a 90 10 a5 98 29 0c 4a |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009b0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009c0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009d0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009e0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009f0 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 00000990 85 0e a9 00 85 05 ff 05 0f 4a 85 0e c6 ee 10 aa |.....|. 000009a

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00000d00 0e 0f 00 02 00 04 02 34 52 cc f6 14 0f 00 e2 05 |.....4R....|
00000d10 0a 0f 14 bd b4 a9 54 59 5e 63 00 08 04 0c aa b6 |.....TY^c....|
00000d20 c0 cc 3c 7e 7e 7e ff ff ff c3 05 10 15 20 25 |..<~~~....%|
00000d30 30 00 09 12 1b 24 2d 36 01 00 10 20 30 40 50 60 |0....$-6... 0@P'|
00000d40 70 80 90 00 10 8b d1 b9 9d d1 d1 18 10 61 d1 32 |p.....a.2|
00000d50 90 14 10 10 30 30 10 10 10 00 00 08 00 00 00 00 |.....00.....|
00000d60 05 03 17 2b 23 75 b4 a0 ff 38 c8 e9 0f b0 fb 49 |...+#u...8....I|
00000d70 ff e9 06 0a 0a 0a 0a 94 83 15 83 95 83 60 85 02 |.....,....|
00000d80 ea c8 95 20 ea 88 10 fd 95 10 60 c0 09 b0 22 86 |.....'...."|
00000d90 ee e8 20 fb fd 29 20 d0 02 ca ca e0 08 b0 09 a5 |.....).....|
00000da0 ea c9 c0 90 03 20 aa fd a6 ee b1 f0 3d 4c ff 91 |.....=L..|
00000db0 f0 60 c6 89 a5 89 30 0f c9 04 a9 02 90 01 4a 85 |.'....0....J.|
00000dc0 1f 85 02 85 2b 10 1d 18 65 8a 85 89 a9 00 85 02 |....+....e....|
00000dd0 85 2b 85 1f a5 88 85 24 29 0f a8 88 10 fd 85 14 |.+....$)....|
00000de0 a9 7c 85 8a 85 02 85 2a 60 c6 89 a5 89 c9 04 90 |.-....*`....|
00000df0 04 a9 00 b0 03 ea a9 02 85 1f 60 a5 ea 0a 0a 18 |.....,....|
00000e00 65 ea 18 69 59 85 ea 60 a5 c7 d0 5c f6 cd b4 cb |e..iy..`..\....|
00000e10 f0 56 c0 05 f0 04 c0 02 d0 24 b4 cd c0 08 00 08 |.V.....$....|
00000e20 b5 cb c9 05 f0 46 d0 40 b9 ea ff 95 17 a9 0c 95 |.....F.@....|
00000e30 15 a9 cb c9 05 a9 04 90 02 a9 08 95 19 60 b9 44 |.....,....D|
00000e40 fd 85 ee a9 ff 85 ef b4 cf b1 ee d5 cd d0 18 c8 |.....,....|
00000e50 b1 ee 30 14 c9 3f f0 14 95 17 c8 b1 ee 95 15 c8 |..0..?....|
00000e60 b1 ee c8 94 cf 95 19 60 a9 00 95 cb a9 00 95 19 |.....,....|
00000e70 95 cd 95 cf 60 a5 ca 29 01 09 80 85 ca 60 c5 cb |....`..)....`|
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footnotes

<sup>1</sup> See Figure.

<sup>2</sup> Smithsonian Institution Time-Based and Digital Art Working Group: Interview Project, July 7, 2013. Interviewers: Crystal Sanchez and Claire Eckert.

**SITBDAWG:** Please tell us about your background and your current work.

**CMA:** Im a fine artist. My work ranges from video to performance to Internet stuff to composition. I work all over the spectrum. A substantial portion of my work is born digital; it does not exist outside of a computer. I have no training in fine art. My education is more in music, specifically classical guitar, and electronic composition - which may be relevant, because a composition is really a set of instructions that are realized by a third party. Thats a pretty good metaphor for digital media.

**SITBDAWG:** How do you think about preservation issues in the work you do every day?

**CMA:** Thats a great question. I know this is a horrible thing to say when you are talking about standards and best practices, but it changes. The way I have dealt with it has changed over the years. But I can start by talking about my most recent experience. I recently reorganized the way I work internally within my studio. When I make a file, I think about where it goes, how it is filed, how it is named, whether it is tied into a database, and maybe, if I have any energy left after considering the preceding items, what is the plan for preservation. I went from just having a laptop full of files that were a complete mess to a real system to file everything. I had to, because I just couldnt find anything anymore. When you work on the computer, you might make 100 files a day; over ten years, thats just hundreds of thousands of files. What a headache/nightmare! So what Ive been working on lately is just getting organized. In that way, Im thinking about the future. If I can't find something, it's as good as lost. I also finally went through the whole thing of getting a real back-up plan - offsite, onsite and in the Cloud, with daily back-ups. I have a mirrored raid, which has a hot copy workable copy that gets re-copied every night. Then that mirrored raid gets sent up both to the Cloud and to my house. Once a year, I take a copy to my parents house. Thats my current system.

**SITBDAWG:** Do you feel thats sufficient?

**CMA:** I hope so! But these things are really for emergencies. I did have one data emergency, during Hurricane Sandy, and it came through for me then. But I cant say for sure its sufficient, because I dont know whats around the corner and I dont want to jinx myself.

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**SITBDAWG:** How did you get the knowledge or expertise that you needed to take care of your own archive?

**CMA:** I would say about 10 percent of it was just me being a computer nerd. Beyond that, I worked with a gentleman named Walter Forsberg. Many years ago he came to do a project with me as a conservation student and he blew my mind with the knowledge he dropped on me. His project was to come and do a collection assessment. This was when I was working in my apartment, and it was just a mess. He took a very small sliver of my collection of media and did an assessment, and said This is what you should do. It was totally theoretical, but over time, I started to slowly piece together some of the things he had suggested. I also worked with Ben Fino-Radin and a few other archivists, who came to my studio and helped me to put together the raid.

**SITBDAWG:** Its interesting how you seem to have gone from not considering preservation too much in the beginning to making it somewhat of a priority in your process.

**CMA:** Well, it was always a priority in the sense that if I made something that was really good, I knew it was really good because I would be saving it all the time to as many hard drives as I could and hiding them all over my apartment. So I always had that kind of anxiety in me, and that was always the most accurate way for me to know when I was working on something really good - I would start to get really nervous that my computer would crash and I would lose it. So that had always been there. But it wasnt until I worked with all these wonderful people that I really tried to get some kind of action plan.

**SITBDAWG:** Do you always keep certain kinds of files in your archive?

**CMA:** I try to keep everything, but I suppose theres a kind of hierarchy. In every project folder, I have a folder called originals that is working stuff - unorganized files that I dont really care about. If its something, it goes in the master folder, which is stuff I really care about. So I try to keep everything, but there is a hierarchy with respect to how much attention I actually pay to different things.

**SITBDAWG:** Do think other artists are doing this - working with archivists and digital preservationists to come up with plans for archiving their own work? Is it the artists job to think about that?

**CMA:** Im not an outlying case. Everyone is on their computer all day now, no matter what you make. I dont know whose job it is, but I do think most artists are at least as savvy as I am. They might not have naming conventions, but certainly they take care of their files. Its just a part of life now, right? You have your laptop and it might have some MP3s that you really dont want to lose, so you take care of them. Digital maintenance is just becoming part of life. Its so boring, but its just a part of life. I know artists are thinking about it because I get emails and phone calls from my artist friends asking me about hard drives and stuff like that all the time. They might not be working formally with preservationists and thinking specifically about standards, but everyone is thinking about it. Im working on a project now on a grant from the Creative Capital Foundation to print out all my source code - to make little books of printouts for each project. Its called The Source. Its a long-term archival project. So if everything else gets destroyed and we dont have electricity anymore, there will probably be a couple of these books lying around somewhere.

**SITBDAWG:** Thats an interesting approach; do you think printing out the source code could help in recreating the work later?

**CMA:** In theory. But it doesnt really matter, because printing out the source code is interesting in itself as another manifestation of the work. It could stand next to the work itself on equal footing. But thats just me as an artist talking, and an artist doesnt have to make sense.

**SITBDAWG:** After your work has been collected, are you ever asked to help in migrating the work forward for future installations?

**CMA:** Again, its case-by-case, and it really depends on the institution. But I do like to be involved if I can. I have a work in the Whitney collection called Super Mario Clouds; they installed it a few years ago in a show, and yes, they had me come and help to install it. It is always installed a little differently. Also, when I do survey shows of my work, I tend to install older works in new ways. It keeps them fresh. The Super Mario Clouds piece is heavily tied to specific hardware [video game console].

**SITBDAWG:** How do you think about a piece like that over the long term?

**CMA:** I tend to think of all this stuff as performance, really. Its software being executed in real time. Yeah, the hardware is important now; but who knows if the hardware is going to work in 100 years? You might have to think about other ways to run it. Thats similar to performance. Do you re-create a performance? Do you just show documentation? I think its a similar kind of question. So thats how I think about these things now; as a kind of performance with systems and structures. People dont expect a performance to be happening always, and in the same way forever. They realize its a temporary thing and when it does happen again, you have to approach it with maybe some different variables - different people, different machines, different software, etc. Who makes those decisions? Do you define them? Or do you let others make them? This is an abstract question. I would love to be involved as much as I can, as long as Im around I guess.

**SITBDAWG:** Do you ever think about where your works will be in 150 years?

**CMA:** Yeah, it will probably just be one of my source code zines sitting in your library. Ha! And maybe somewhere there will be some correspondence related to it. Something like that. Then it will be up to [people at the time] to tackle it. But who knows really. I remember in school when I first learned that if you hear Bach played on the kind of instruments that existed in his own time, it sounds completely different than it does today. If you hear Bach played on a period organ, the sharps and flats are totally different than what we hear now. I heard Bach on a period organ once. OMG! It was nuts. Really frantic stuff. With media art, I think youll have a similar situation, where things get skewed over time. Its a similar situation; Bachs scores are instructions that need to be

executed on a machine. Thats how I think about it. So maybe you can think about it in terms of a historically informed performance, or something like that. I suspect in 200 years - if, God willing, someone actually wants to see my work - it might be a little bit different, maybe because of something that people have totally forgotten about. Like they totally forgot that electricity was 60 hertz, so it will be played at the wrong speed or something. Thats just what happens. And it happens with everything; paintings fade. It doesnt bother me. Its actually kind of interesting. Tony Conrads Yellow Movies are masterworks, in regards to these kinds of concerns.

**SITBDAWG:** You mentioned working with digital preservationists; do you think that is the best way for artists to acquire this kind of knowledge?

**CMA:** Well, I found it really helpful and illuminating and awesome. So yeah, I think that model is good. Or maybe something like a seminar would work, because archivists are going to throw down some knowledge that you never would have thought about. They are working at a level that is so much different from what I was ordinarily doing with my laptop. Walter would tell me You need to have this many back-ups, and I would think that it seemed excessive. But he was right of course.

**SITBDAWG:** Do you encounter professional standards in your work?

**CMA:** Not really. There were a lot of things on your question sheet I had never even heard of. I never knew SMPTE stood for Society of Motion Picture and Television Engineers. That is a very cool-sounding Society. I didn't know about AAM or AIC. I just don't know about this stuff. Do you guys work at all with preserving performance art?

**SITBDAWG:** Yes, some of the SI Museums collect performance works.

**CMA:** I feel its all very similar. Just because Im a computer guy doesnt make much difference. A lot of other contemporary artists have totally similar problems, and thats what makes it interesting sometimes. Its like I was saying earlier, the keys on the piano change at some point. A lot of the debate is about how much you can change a work from the way it was originally presented and still consider it authentic Id like to say leave that up to each individual artist. Each artist has their own individual vibe. Anything could be possible. What I would have said 10 years ago is probably different from what Im saying now. I did an interview back then with the Guggenheim, and I dont quite remember what I said, but I can imagine some of it was different. I was researching the composer Bruckner recently and there is something called the Bruckner Problem - which is that nobody really knows what the final versions of his symphonies were, because he kept updating them throughout his life. At different points in his life, he had different ideas about each symphony. So now people are arguing about which ones are the right ones. I would say that the story is the story; but most people still want to know which one is The One. Its a very human thing. Its all a performance. Its not real. Its a temporary manifestation of information. None of it is going to be around in the future.

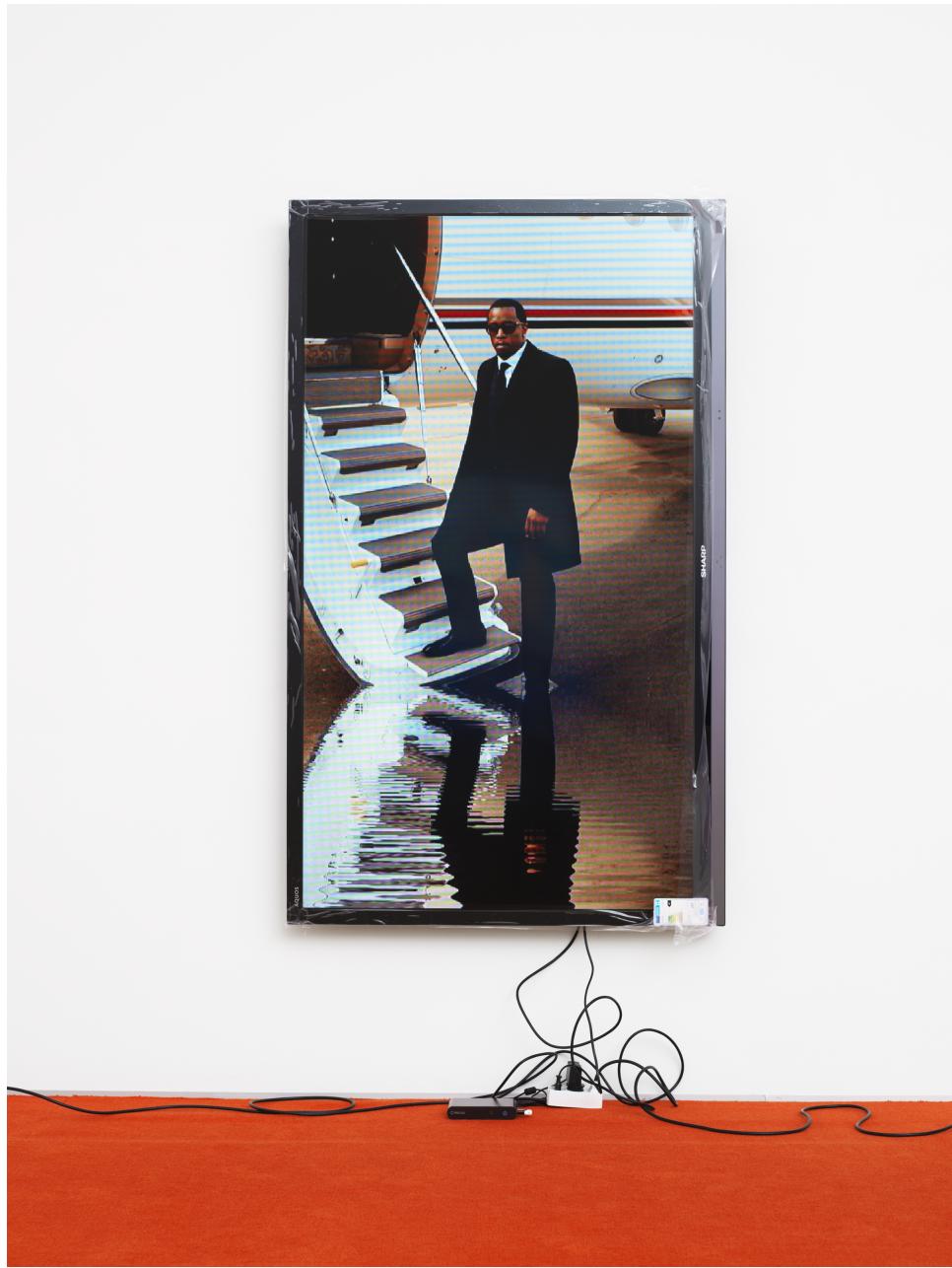


Figure 1: Diddy / Lakes, 2013. 1920x1080 H.264/MPEG-4 Part 10 looped digital file (from lossless Quicktime Animation master), media player, 70 flatscreen, armature, various cables. 200 x 93 x 28 cm. Collection of the Whitney Museum of American Art.

Cory Arcangel  
 THE SOURCE  
 Issue 5: Space Invader



## Creative Capital

Published by Arcangel Surfware.  
 Designed by Claire Kwong and Cory Arcangel.  
 Special thx: Amanda Schmidt, Gil Gentile.  
 With support from the Creative Capital Foundation.  
 ISBN: 978-0-9966360-4-9

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Change Log 02-27-2015

- Deleted project date from title page
- Changed [www.coryarcangel.com](http://www.coryarcangel.com) to [www.arcangelsurfware.biz](http://www.arcangelsurfware.biz)<sup>2</sup>
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