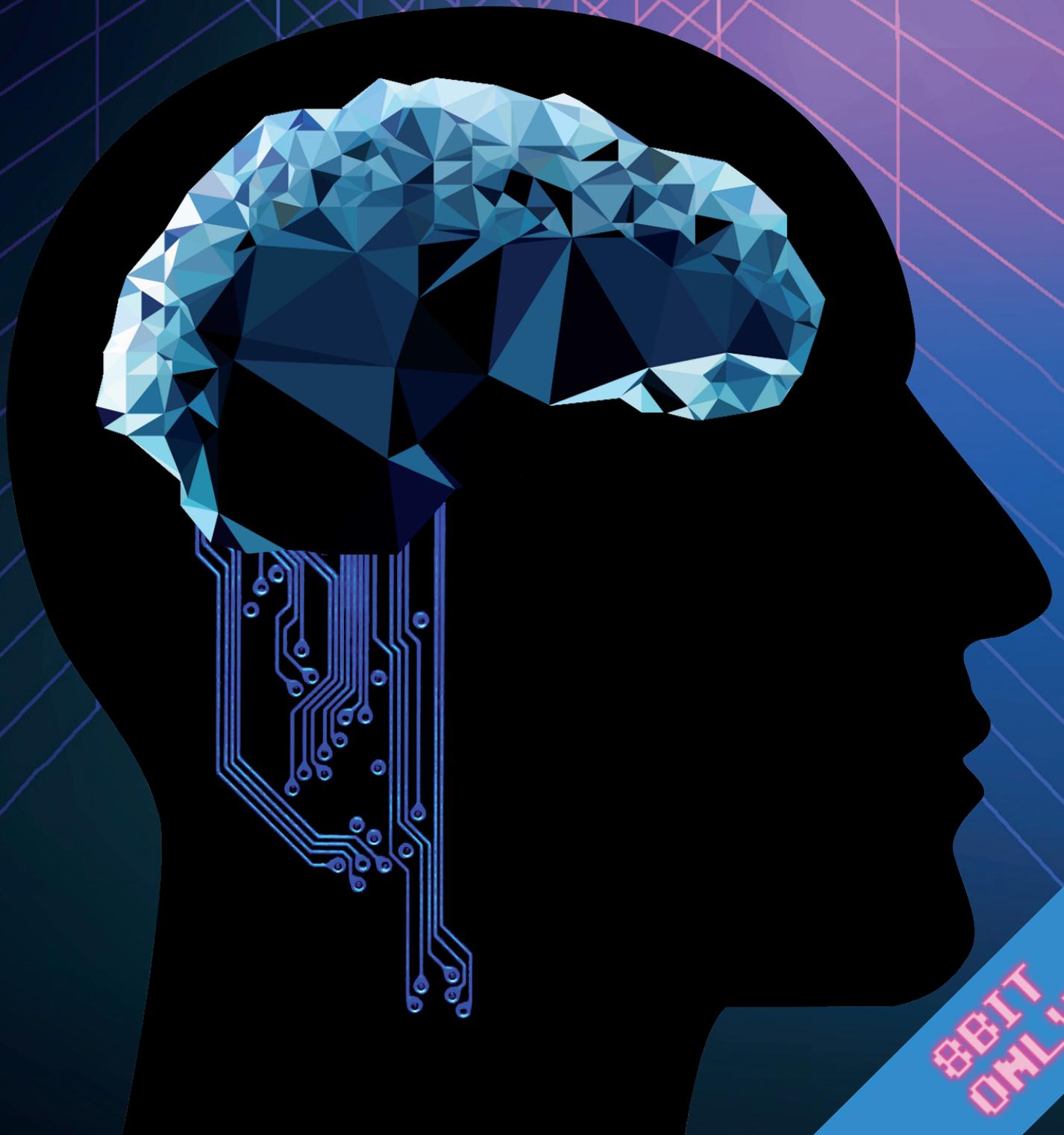


KILOBYTE

MAGAZINE

2018 / 2

A MIND OF ITS OWN: AI IN 8BIT · GAMES BY APOLLO · PORTRAIT: MR. & MRS. ATARI
INTERVIEW: ANDRZEJ WISNIEWSKI · HUNTER'S MOON (C64) · DAWN OF KERNEL (CPC) · AND MORE



8BIT
ONLY

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Photo: Tom Greene

There are nice covers in your diskbox as well – we're sure of it! Please send your scans or photos to: kilobytemag@gmail.com

FEEDING YOUR COMPUTER

Computer Food was a mail-order software retail business based in Brooklyn Park, Minnesota. It was quite likely one man who was operating the business out of his own house: Steve Pauley. He published some

advertisements in newsletters from an Atari user group in Minnesota around 1983. The company slogan was: „We sell software at prices that won't take a big byte out of your wallet.“ It seems that the company only operated locally. (tg)

VIDEO KILLED THE RADIO SHACK
Who doesn't know Radio Shack? Even in Europe, the company is well-known for their line of computers, but less for their stores. Mostly because there weren't any over here. And so you won't find that many diskettes branded by Radio Shack, as they were sold in the stores as a great pack-in if you were there, buying your first computer and needed some media to save on all

the programs you're going to write anyway. Most certainly Radio Shack did not produce those themselves, but bought the disks at one of the big manufacturers of the time – probably Dysan. The proclaimed: “Each diskette is individually certified against defects and designed to meet TRS-80 standards” – for whatever that was supposed to mean. They were, however, quite cheap at the time. (bk)



INTERVIEW WITH ANDRZEJ FROM C64PSU.COM

If you live in the US and are looking for a new power supply for your C64 or Amiga, you go to Ray Carlson. Due to shipping costs, that's a quite pricey decision over in Europe. So where else might you find a replacement PSU? Andrzej Wisniewski has an answer to that question.



Photo: belchonock, 123rf.com. Montage: bk

Andrzej Wisniewski likes to power on his Commodore from time to time. But as the old power supply units tend to fail and damage the classic computers by the dozen each year amongst C64 loyalists, he was looking for an alternative. And so he started making reliable PSUs himself (C64PSU.com). KILOBYTE MAGAZINE interviewed him.

When your first C64 PSU came out, it seemed to have come out of nowhere: It was not introduced in C64 online forums and many people in the C64 community had no idea who you are. So maybe you can introduce yourself and

tell our readers how you came in touch with the C64 in the first place?

The first PSU came into existence out of a weird mix of sentiment, nostalgia, anger and frustration. But let me introduce myself first: I'm Andrew, an electronics engineer and MSC in digital signal processing. I'm involved in a few commercial projects related to data logging, translating and collecting (rslogger.com, keydemon.com), so I have some manufacturing and electronic design background. But I was never an active member of any C64 related group or forum back in the 80's or

now. That's simply why I'm not recognized and came out of nowhere. My first encounter with C64 was back in late 80's when I was 10 years old. Poland was behind the „iron curtain“, so technologically we were maybe ten years behind the USA or Western Europe. Western computers by Commodore or Atari were expensive and rarely available. My family was rather poor, so it wasn't easy to get my own personal computer, let alone something other than the ZX Spectrum close Elwro Junior. When the Western World fell deeply in love with Amiga and Atari ST systems, the C64 became finally cheaper and got my first used one with a faulty joystick, Dattassette unit and two pirated games on tape. It's a pity to confirm I was using pirated software, but back then in Poland there really was no other choice. However, I left the 8-bit world and

C64 experiences behind at some point and did not look back for more than 30 years. And then I was looking at eBay auctions for old Commodore C64 computers and I felt some kind of nostalgia, so I've decided to purchase one or two C64 units to show them to my son. And here we are – the C64PSU story begins.

Why did you feel it was time to make a new PSU for the C64 and when did you sell your first units?

The C64PSU.com was never considered to be a commercial project. It's a side project for me and I invest some spare funds and a lot of time to keep it alive. The profits from sales are minimal, covering the costs for parts and labour. The PSU, except for the mainboard, is mainly handcrafted due to the high amount



The C64 PSU from Andrzej comes in two variations: a standard one with just enough power for the C64, and another one that also powers the 1541-II floppy drive.

of manual work, like assembling cables and connectors. The quantities are too low to enable any fully-automated manufacturing system. This project is kind of a tribute to the entire community and these beautiful days I spent with my C64. The first unit was made for my own usage about three years ago – and I'm using it till now. I purchased an used C64 and was ready to show it to my three year old son. We were playing some classic games, but then suddenly the C64 shows a black screen. I was looking for the reason, changed the RAM that was burned, but then it turns out that the old PSU was the cause. It was looking good when I measured the voltages, but it burned RAM in random moments. I got angry and disappointed, and as I found no reasonable re-

placement available on the market, I decided to build my own unit. First, I made some just for me and my three C64s. Then some of my friends wanted to have a new PSU, too. So I made ten units and decided to sell them with low profit to get some feedback. I was on a mission of some kind: to give an alternative PSU with reasonable price to preserve some machines that waited in attics, garages and basements to be woken up. But the feedback was mixed, from enthusiastic to devastating. I was about to give up but I learned a lesson and I've started to eliminate the problems one-by-one, starting with the ones that users were complaining most.

The very first iteration of the PSU was met with some scepti-

» *I was on a mission of some kind: to give an alternative PSU with reasonable price to preserve some machines that waited in attics, garages and basements to be woken up.*

Andrzej Wisniewski



cism because of some odd colored wires and not everything inside being steady. Looking at your product now, there seems to have been a lot of changes. How many iterations have you done since and what are the most noticeable changes? What safeties, like overvoltage protection, are built inside?

These very first units had grey cables and enclosures and were sold only locally in Poland. Those were the first things I've changed. Black enclosures, black cables and connectors. The negative feedback spread fast and effectively, and someone put a lot of effort into this instead of contacting me directly with valuable feedback. There is a lot of conflicting interests in C64 community, as

you might know.

The first units were a kind of mock-up where I was testing some different approaches, but you know what? Not a single unit has been returned as malfunctioning. I understand that the first units met scepticism when I'm looking back now. As I've said before, I was never active in C64 forums to actively defend this project, but I've read some threads. And it was always really interesting to hear these opinions and learn from them. Have a look at my eBay feedback. One single negative opinion comes from a Finish customer who claims that the unit is not working, yet he never wanted to return it for refund.

Leaving the history behind, the current PSU is 6th generation now. And I'm already working at the 7th gen-



Photo: Andrzej Wisniewski

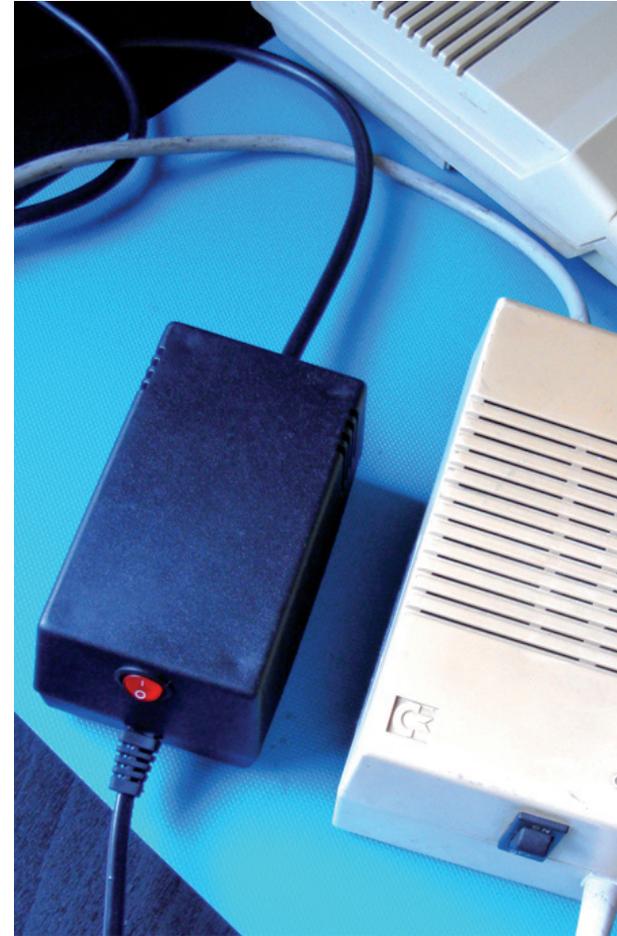
» ***This is not cheap Chinese no-name stuff!***

Andrzej Wisniewski

eration. It's all based on experience and real feedback and I try to implement ideas by the C64 community. When it comes to protection features: My PSUs have several over-current protections (main fuse, two PTC fuses for 5VDC and 9VAC) and internal AC/DC module active over current protection for 5VDC line. If it comes to over-voltages, there is a varistor protection for AC IN, then active over-voltage protection for 5VDC line (it's the most important, combined with fast Zener/TVS diodes against high frequency voltage spikes and crowbar-like circuit trigger set to ~5.25V limit for lower frequency over voltages – all to protect the C64 RAM) and internal AC/DC is regulating the output voltage, but it has the over-voltage protection, too: Zener shunt diode based and active ~5.7V as the last line of defense if other protections fail. For 9VAC voltage, there is a Zener/TVS diode based over-voltage protection as well – just in case the transformer unit or input varistor will fail. 5VDC output is additionally filtered to prevent potential noise.

All parts I use are high quality: transformers are made in Germany, AC/DC converting module by a renowned brand, Polish output CE certified cables and so on. This is not cheap Chinese no-name stuff. The only limit is the final PSU cost, as I never wanted it to be expensive.

How did you handle the criticism that reached you?



I like constructive criticism. I like sharing ideas and developing the final product to deliver better PSUs. I was never acting the “wise guy”, but I was creating the devices the way I wanted to use them with all the features saw fit. After all, I am a user, too. And I am still open for suggestions. Any reasonable idea will be addressed sooner or later in another PSU revision.

Does your C64 PSU supply enough power expansions like REU or SuperCPU?

I am in contact with SCPU users who confirmed that. I have no



Photo: Andrzej Wisniewski

feedback from REU users. As far as I know, the SCPU is using $\sim 0.2A$ more than the regular C64, so it's not a very "heavy" load, certainly less than $2A$, which my smallest PSU offers. There was an $2.5 A @ 5VDC$ PSU recommended for REU as I remember, so our "two in one" PSU should handle it with no special efforts. To make sure the PSU will handle extended systems, it's always better to use the model for C64 and 1541-II (without a 1541-II connected).

You also offer new PSUs for the C128 and Amigas. What made you add them to your store as well and how well are they received?

The users made me do it, as I had many requests from my customers. Sales of the C128 PSU are slow. This computer is quite rare nowadays. Moreover, the PSU of this machine was quite good and most of them are still working fine. I have one C128 in my collection for test purposes. The Amiga PSU was received very well from the beginning. After a few minor fixes like changing the switch, putting in a stronger and longer input cable, I think it's the final design now. The users seem to be quite pleased. The internals of my Amiga replacement PSU are high quality as well: medical grade AC/DC converting component, for example. And it offers good margin of spare power and efficiency. C128 and Amiga 500 PSUs are using brand new, highest quality square DIN-5pin connectors, which are rare and unfortunately expensive.

What will be next? A Plus/4 PSU with the edge-shaped connector maybe? What are your plans for the future?

I have some plans for – let's say an "ultimate" edition, integrating some advanced technological features. I hope the community will accept this product, perhaps it's a bit "insane" and overblown, but maybe quite interesting nonetheless.

After that, I don't know really. It all depends on the users. I had some inquiries for Plus/4 PSU indeed, but the demand is not high for this

» I will consider to design some new not-PSU related stuff and I'm always open for new ideas.

Andrzej Wisniewski



Side-by-side size comparison of the classic and new C64 PSU by Andrzej.

model. Also, it can be supported by regular C64 PSU with use of an adapter. Perhaps I will offer the Plus/4 adapter? I really don't want to multiply the models when there is no reason. And I'm still looking for other quests: Some users were asking for Spectravideo PSU. Perhaps I should have a look for some new market niches. It's all up to the users, so please feel free to make suggestions.

What's the farthest you sent your PSUs to?

My customers are located all across Europe, especially in UK, Finland, Germany and Italy. People from Australia also seem to need new PSUs. USA and Canada are active, too, but because of the shipping costs, it's a hard market for me. Also,

it's Ray Carlsen's territory (hail to the guru!). Australia was definitely the farthest place I've sent my PSU to so far. Sorry that I'm not offering an Australian cable version yet, maybe I will do so with 7th generation.

Is there anything else you would like to add or share?

Greetings to the whole C64 and Amiga community – the constructive part of it, haters aside. Keep up the good work! Some of your hardware and software projects are just stunning and create history. Everyone likes SD2IEC and 1541U. If you have some ideas for new peripheral devices, feel free to contact me. I will consider to design some new not-PSU related stuff and I'm always open for new ideas.



Some of the main components in here come from Germany.

On the inside, everything looks quite tidy and the board looks surprisingly small.



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It won't get any more heroic than this when it comes to company logos from early video game companies: Games by Apollo.



Patrick Roper's first idea was holding hands - quite literally: He was part of the first „Hands across America“ committee of Texas in 1976. The idea: Let's get four million Americans from East to West to hold hands on the 4th of July. Roper said to United Press International at

the time: „It's a national ego-boost. After Watergate and Vietnam, we got a national inferiority complex, and this would just be our way of looking back and saying ‚Hey, we've been doing a pretty good job, so let's celebrate.‘“ Roper was 32 at the time, and this project, which ultimately

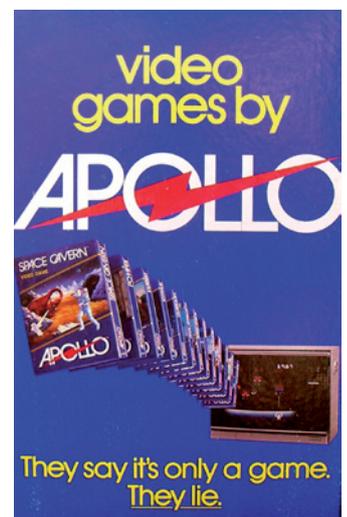


for gamers was a company called „Games by Apollo“, founded in 1981. Roper was then experiencing the video game craze, with Atari’s sales exploding year after year. He saw the success of the very first third-party developer Activision, which had been founded two years ago. So there was clearly money to be made, and it seemed like a great opportunity to be a part of it. The name, „Games by Apollo“, refers to the ancient Greek god of light, prophecy and arts. Oh, and he’s also the son of Zeus. This clearly shows: Roper already thought big when he founded his company. The early logo showed a shining sun, in which Apollo himself was riding a chariot, whipping the horse in front of it. Former Director of

Development Ed Salvo remembers in an interview with Digital Press: „I do remember the programmers had a great laugh at the logo. We all thought Apollo looked pretty pansy.“ And somewhere along the way, Roper must have gotten it, as he changed it significantly over time. While

failed, was already showing what was important to him: dreaming big, getting a lot of press coverage, and boost egos - among them his own. This should not have been his last attempt of making it, as the businessman started some more projects after that. And the most interesting

Advert with changed logo: The lightning stayed, but the Greek god had to go.





One of their more original titles: Lost Luggage. But their best-selling game was Space Chase.

his aim was to repeat the success of Activision big time, he began with small ads looking for programmers in the Dallas Newspaper. He had no intention of looking for experienced guys from Activision, as he knew they'd demand too much money. The company quickly hired as many as 25 developers, the first games followed a few months afterwards.

FLYING HIGH

The pace in which Roper built up Apollo was amazing, yet the commercial success of the games was much needed to pay the bills that had already piled up. Roper wasted no time waiting for the big sales, which he believed were to come soon, before hiring advertising agency Benton & Bowles. And he also kept thinking big: „Activision had \$26 million in sales its first year, so Apollo would have \$27. Activision had a campus with seven buildings, each seven stories, so Apollo would have eight buildings of eight stories“, remembers Ed Salvo. The optimism started with the company's very first game: „Skeet Shoot“. It sold considerably more copies than Roper had hoped for, so he thought Apollo was on the rising. So much so, that his ego got a serious boost and he even bought a helicopter for himself. Although the company published some very original titles like „Lost Luggage“, Roper always kept a close eye on what his rivals were putting out there. However, around 1982 the market for third-party developers exploded

with companies like Parker Brothers and 20th Century Fox stepping on the scene, bringing with them their powerful marketing machinery and exciting movie licenses. Roper, who early on overstretched his company financially and despite making around 9 million dollars in nine months according to Salvo, found himself unable to pay 2.5 million dollars he already owed to Benton & Bowles. So he filed for bankruptcy under Chapter 11 on 12th November 1982. In just around one year, Apollo had produced ten games that sold okay and can even today be picked up at a reasonable price. Just two, Guardian and an early version of Shark Attack called Lochjaw, are rare finds and highly sought after. Three prototypes of other games are known to have been developed, but were not published as the company closed its doors for good in 1983. Pat Roper, who thought he could turn everything around and have a comeback, failed in managing it. But he did not stop thinking big, even proclaiming that Apollo had still one ace up their sleeve and announcing a game for the Atari 2600 that could talk without the need for any additional accessory - or so he told Electronic Fun with Computer and Games in early 1983. And after that, the trace of Roper is lost. What remains is a very condensed story of the rise and fall in video games, as Apollo rode his chariot into sunset within merely one year - never to surface again. (bk)

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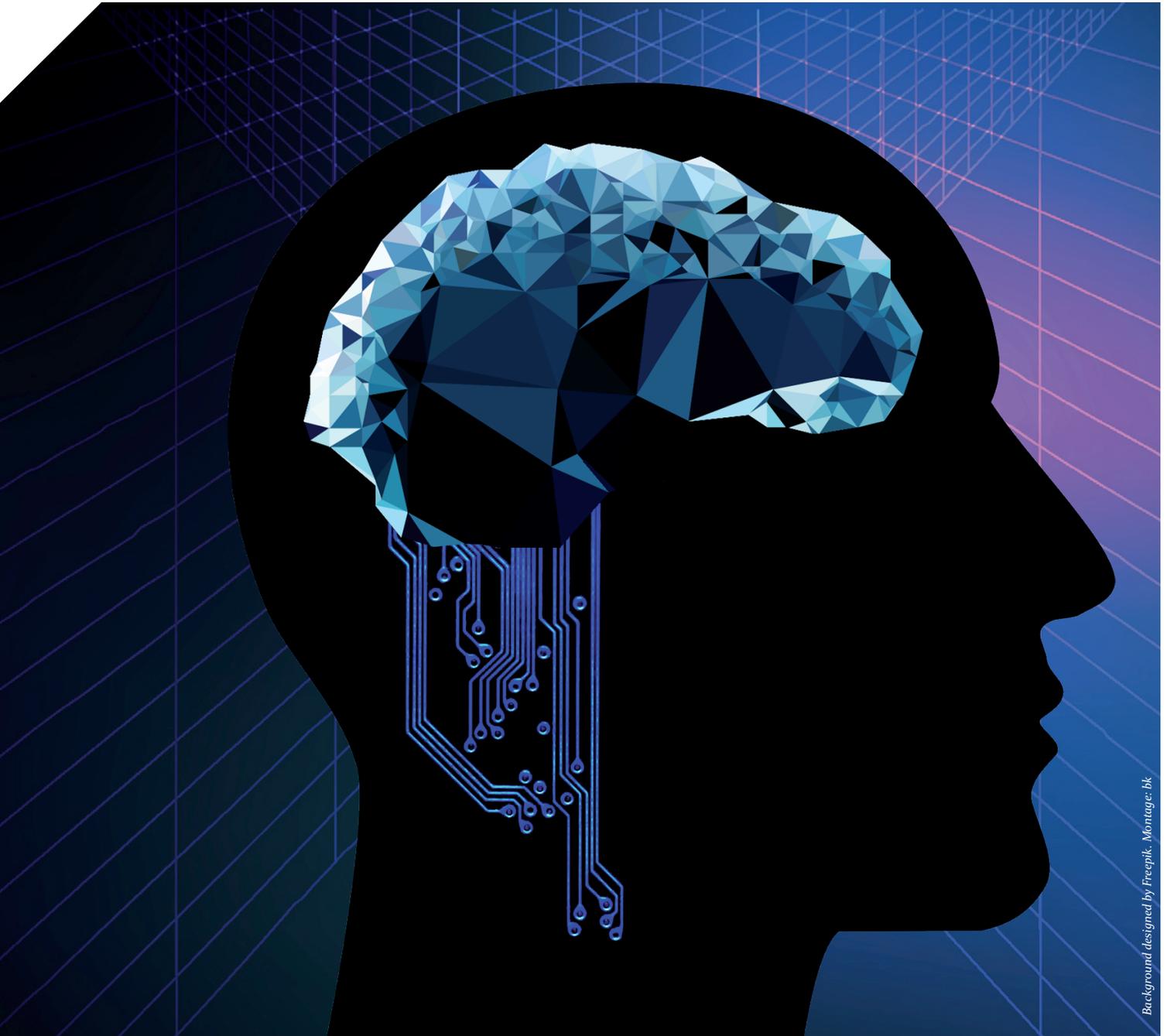


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I THINK, THEREFOR I AM



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I'm sorry Dave, I'm afraid I can't do that. This iconic line from Stanley Kubrick's motion picture *2001* has become the trademark phrase of artificial intelligence. An intelligent machine that makes decisions to the best of its judgement, not obedient to commands of man. It is a fear that is as old as the Computer Age itself.

With every decade, or so it seems, we've waited for the uprising of the machines. And yet it didn't come. But we keep looking into a grim future: Professor Stephen Hawking even warned that artificial intelligence could spell the end of the human race altogether. Whatever role intelligent computers will play in

our future, these fears were certainly unsubstantiated in the past decades. Especially when it comes to 8bit computers. And yet there are books on how to program AI on your Commodores and Ataris, even with listings in BASIC. Not very threatening, is it? This raises the question: What is artificial intelligence? We'll go with the definition that this means a way for the computer to make better use of the information it has collected and solve specific problems. For example in a strategy game. So it is not, like Timothy J. O'Malley pointed out in his book "AI projects for the C64", a way to "somehow transform your Commodore 64 into an electronic personality", although some games like *Little Computer People* trick players into thinking of their machine in such a way. In fact, it is mostly about data management.

PLAYING WITH AI: CIVILIZATIONS

Fabian Hertel, programmer of 8bit *Civilizations*, a game that could best be described as a port of the well-known Sid Meyer classic to the C64, describes how his AI works in the game: "It is used for different decision options like city production or next progress. Then a score and finally a decision probability is calculated. Then with the help of a random number generator, I've made a decision about the odds. The score for each decision is based on many factors: the character of the current leader, availability of

resources, economic performance of a city as a whole, war or peace with other players or how units are spread throughout the game." Surprisingly, the AI itself does not take up that much space: It occupies only 3 KB of the main program. However, every module that is loaded has additional information for the AI, which might add another 2 KB.

With all the calculations ongoing, there is one thing this AI does not take into consideration: if a decision leads to failure, like the loss of a military unit, this does not affect the calculation of the next, similar decision. "It does not 'learn' based on the outcome of its decisions", explains Fabian Hertel. The game is already quite complex, and adding to the AI would raise the need for more than 64 KB the C64 has to offer. So if the computer can't learn, but has to be a viable adversary, how can that work?

PLAYING WITH AI: DEEP JONES

Protovision's C64 game *Advanced Space Battle* is a quite sophisticated strategic and economic space simulation. It also uses an AI called "Deep Jones", who seems like a sharp minded opponent. Part of the reason for this is that he cheats, as creator Jan Boettcher explains: "In contrast to human players, Deep Jones always has complete information about the game. This, and also the fact that he starts off with more ships, makes him not so trivial to defeat, especially in mul-

tiplayer mode.” And here, too, it’s all about making the best possible decisions based on the information the AI has. It starts at the beginning: Deep Jones looks for a starting world that is surrounded by as many other worlds as possible and yet far enough away from human players to avoid an early conflict. Based on those criteria, the game calculates an index for each and every world of the randomly generated star map, and Deep Jones takes the one with the highest rating. So it would be viable to say that the ratings for those worlds are also a part of the AI, as it’s information, unbeknownst to the player, helps Deep Jones making his very first decision. The game also features a very rudimentary learning effect the AI: As long as everything is quite and no war seems impending, based on his turn-based analysis, he goes for economics instead of military. To conquer new worlds, he looks for the “balance” of those stars: how far is the next human player away, how many ships could he dispose, how many ships must Deep Jones send away to be successful, how many would it take to defend the world and so on. So all in all, this kind of AI would be rather defensive. However, Jan found a way to give him a little aggressive incentive: Every four turns, the balance of a world surrounded by the most hostile worlds is reduced for one move, so that it pulls together a large number of ships via its defense mechanism. “And a few moves later



Deep Jones will have many free ships in this world, which he will then use to attack.” But this AI is not a strategic thinker: It only has one array or 72 bytes to store all his judgements of star system. “In total, Deep Jones uses around 4 KB of the memory, and he would need more than that to plan a strategy, like attacking from two sides or even planfully destroy human players to be the winner”, explains Jan.

CHECK THIS

Usually, strategy games use a lot of memory for graphics, music and an overall very smooth presenta-



Designed by Freepik, www.freepik.com

tion. But there are of course more basic looking games that build up a rather poor playing field and instead focus on the AI part – like chess. Typically, chess games use a method called tree searches to make their decisions. This means having a few so-called nodes at the top, branching out the farther it goes to the bottom. Just imagine it like an upside-down tree, thus the name. So with chess, you might start out with 20 different first-moves for white and corresponding moves for black. After that first moves, the number of options multiply rather quickly, resulting in lots and lots of nodes

the further the game progresses. The computer would then calculate all the possibilities for each turn it takes. But as this could take like forever, there are methods to neglect certain moves, like the ones that would lead to losing a figure in vain or even imminent defeat. On most 8bit chess programs, you can adjust the level of depth of the computer, or the time it will take to calculate moves. This is exactly what it does: The more time it has at hand, the deeper it will “think”, resulting in a more difficult opponent.

MY COMPUTER IS A SHRINK _____

Aside from games, AI in 8bit machines can also be used for other purposes. For example, can a computer learn a behavior? Well, if it can be calculated, the computer can “learn” it. If you gave it a series of choices and programmed it in a way that you can influence it’s behavior by, say, pressing a key at the right time while it shows certain choices, you can reinforce it’s decisions, so that it will take those choices more often in the future than others. And then there is also the seemingly understanding computer that “listens” to what you have to say, offering some analysing questions. You may have heard of *ELIZA* by Joseph Weizenbaum. It works like an adventure game, passing your input and using it in its replies. By doing so, it creates the illusion of a sentient being that cares for you. Ideally, this program would inter-

pret commands as a person would. But it doesn't work that way with only 64 KB or maybe even 512 KB available. The vocabulary of a language could barely fit in there, let alone the grammar. And we've then not talked about semantics. So the computer will always be caught in his own little, limited world, only as enlightened as its memory and the programming allow.

So if you can't put in the whole vocabulary and only some lines of instructions, make smart choices. Which is what Weizenbaum did with *ELIZA*: The program searches the sentences that a human types in for certain key words. By clever use of grammar and the rearrangement of sentence structure, it replies in a remarkable human-like way, given its limitations. If you typed in something about you mother, the program would kindly ask you to tell more about your family situation in response. But the more complex the sentences get, the sooner *ELIZA* shows her limits. But for around 2.000 lines of BASIC code, the result is rather impressive, although nowadays, it might only be enough to impress your grandparents for a short while. By adding more key words and more possible reactions, broadening the answering options and with machine code, you might well boost the program up to look "smarter", but with 64 KB RAM, it will never reach the point where you will fool anybody: This is just a machine. I would never pass the Turing

test, if that was a real test to put any computer through.

FOR FURTHER INFORMATION_____ Artificial Intelligence remains a very interesting topic today, where IBM proclaims that its Watson can be of help in many fields. But no matter how sophisticated a machine is, it remains a machine that processes data. So no matter how much the IBM's marketing is pushing to declare that AI is already here, it shows in some fields like medical operations, that AI is far from perfect or having all the answers that no man ever thought of. It is however more useful than our old 8bit machines are. But they can be programmed in different ways to explore the very basics of artificial intelligence, and it might sound appealing to some even today to have a nice conversation with their home computer, although they are aware of its limitations. If so, then you might want to read *Artificial Intelligence Projects for the Commodore 64* by Timothy J. O'Malley. He gives a good introduction into the topic, explaining different ways of programming along with nice listings for practise. Another example is *Artificial Intelligence for the Commodore 64* by Keith and Steven Brain. It might also be worthwhile to look into *TPUG Magazine* issue January/February 1986 and the same *Softline Magazine* issue of 1984. You'll find them via archive.org. Enjoy reading more about this fascinating topic! (bk)

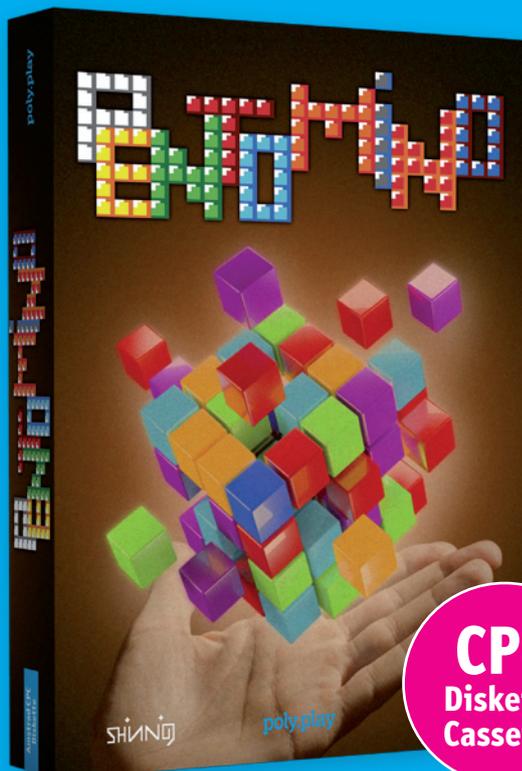
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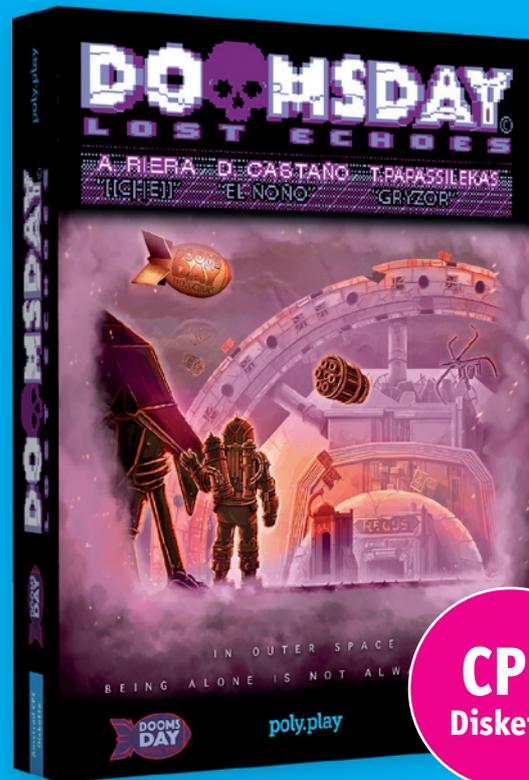
C64
Cartridge
Diskette
Cassette

Rescuing Orc is a jump & slash game, a mixture of platforming and action, with a bit of adventure for good balance.



CPC
Diskette
Cassette

Pentomino is a puzzle-game where you have to solve 464 different puzzles and has a great soundtrack.



CPC
Diskette

Domsday Lost Echoes is a high grade graphical text adventure with tons of pixel art and three possible endings.



CBM II
Diskette

Space Chase is a fast 2-player space shooter with great graphics and fantastic SID sound.

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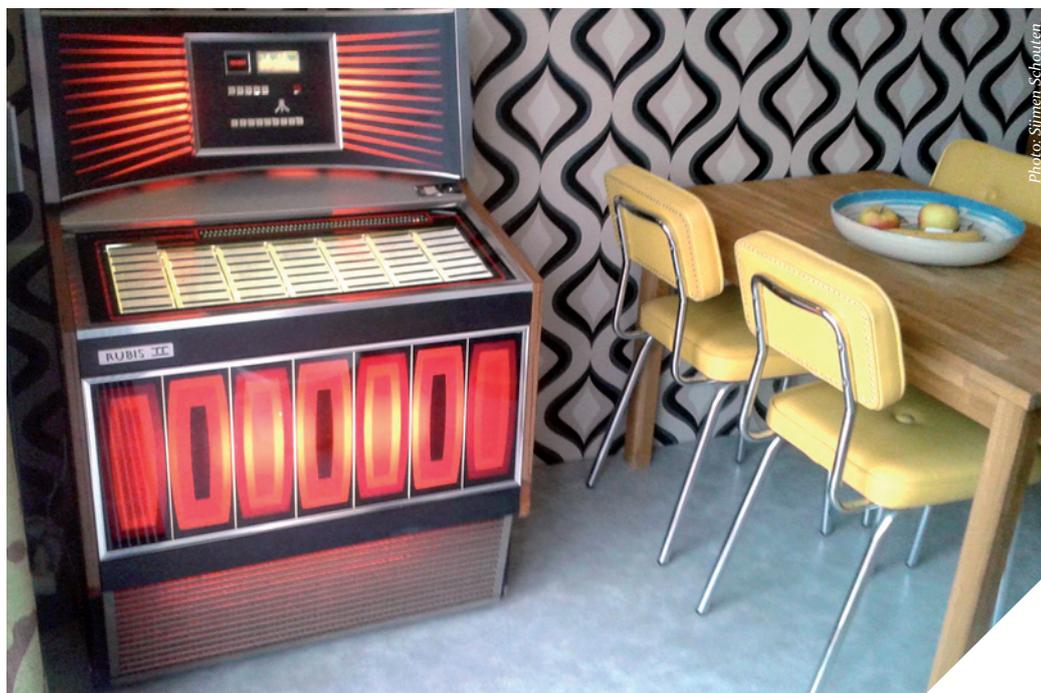
Sandra and Sijmen with their newest addition to the collection: a very nice Sears Heavy Sixer.

Sijmen Schouten got his first Atari 800XL from his study-allowance in 1983. Sandra Goedhart got her Atari 600XL from her parents for Christmas in 1984. So far, this is a story like many others out there. But the magic happened when the two first met in 1986 and fell in love. “It was fun that we both had an Atari and played a lot on it”, remembers Sijmen. And unlike many other couples, the two kept being passionate about their hobby. “We made postcards on it with Mini-Office II and Printshop and wrote our job CV’s on it, people were impressed by

that back then”, says Sijmen. “Also, the games were fun to play, especially the adventure games. I learned to program on the Atari and I still do, just made a DOS for it and some games for free download, fun to find out how to do that”, he adds. They used their 8bit machines throughout the 80s and into the 90s, but the collecting fever got them as soon as the Atari Jaguar was released in 1995. Of course they had to have it, and their collection keeps growing since then. You can tell as soon as you enter their house: Nice arcades welcome you to the kitchen and an

Atari jukebox from the 70s in the living room is most certainly something you don't see everyday. What do visitors think when they enter their home? "Friends and family know we collect and find it very normal there are pinballs and arcades in the kitchen – I think", says Sijmen. "The nieces and nephews even have Atari shirts. First ones we bought for them, but they now buy those themselves." Atari has become a household name quite literally in this case. There is just so much passion that drives this collector's couple, an energy you can feel instantly. Also, it's not that usual that a couple shares the same passion for collecting the same things. "I am more the programming type, and Sandra collects all things", Sijmen says with a smile. Either on fairs or online marketplaces: She has an eye for nice stuff they don't already

have – which is incredible considering that basically their whole house contains Atari things. After all, they don't call them Mr. and Mrs. Atari for nothing. "We have just bought a Sears Telegames Heavy Sixer boxed, very happy with that. We already have a NTSC and PAL Atari Heavy Sixer so this is a great addition", explains Sandra. With so much great items in their collection, one might want to ask what their most precious collectible is. "I guess the Atari's we had from the beginning. And we also bought very nice things from a former Atari Sales Manager, like an original pin and his business-card. Oh and our Asteroids cocktail table of course, we have that a long time now. We bought it from someone in Amsterdam who used it as a computertable and we had to carry it down from very steep old stairs. But it is in beautiful shape and the



Jukebox hero: Atari France bought the jukebox manufacturer Electro-Kicker in 1974 and produced the machines under their label. This model, called Rubis, was made in 1976 and weighs around 130 kilos.

sound coming from it is amazing”, says Sijmen. Although they are not looking for something specific to add to their collection, they keep an eye out to see if they find something they don’t have for a reasonable price. “Unfortunately we don’t have more room for arcades”, sighs Sijmen. Otherwise they’d welcome a Centipede or Q*Bert to their home. If the old hardware breaks, Sijmen repairs it himself. There are still enough spare parts to be found on the internet. “I also do the maintenance for the Bonami game and computer museum as a volunteer and most of the time I get the arcades to work again.” It has become harder for them to find things to add to the collection.

“I went to a fleamarket alone one day and at the end I hoped not to find anything more as the car was already full”, remembers Sandra. But that was many moons ago. “Most things we now find we buy or swap at the Retrofairs, we still find nice things there or people come to us knowing we collect.” And this is where you might have met the nice couple if you ever went to Oberhausen, Bochum or even Mannheim: Mr. and Mrs. Atari are at nearly every Retrofair there. “The fairs are a great way to meet people, some friends visit them all day and it goes by very fast. And it’s also nice to sell some stuff to make room.” And as if they believe in karma, they sell their things for very reasonable prices.

This is just a small part of their collection. To believe how extensive it is, you’d need to see it.





» Friends and family know we collect and find it very normal there are pinballs and arcades in the kitchen – I think.

Sijmen Schouten

So why do they keep collecting? What's their goal? It's just for the fun of it, says the couple. "It is a great feeling to add something to the collection. At a rare occasion, we post it on social media, and we should put it on our website, which we mostly forget to do, but it is always nice to have a new addition." One might not believe that with a house full of all things Atari, mostly 8bit related things, both of them find new additions regularly. But they do. There is just so much out there. The one thing made by Atari they don't collect is all the ST stuff, as it takes up too much space. Nonetheless, they do enjoy other things aside from the brand with the Mount Fuji logo. "We love to go on holiday in the United Kingdom. Mostly we go to Liverpool as Sandra

is a Beatles fan and a lot of good music comes from it and we also have friends there. And we like to go to the events that are held there, like retro events or we went to a Star Wars Gathering in Liverpool one time. And when we are there, we also do go to fleamarkets and Charity shops, that is a habit that will not go away", explains Sijmen. So if you happen to attend one of the next Retrofairs in Germany or even some retro fairs in the Netherlands, keep an eye out for the nice and very kind couple. If you whistle a Beatles tune while strolling by, you might get a smile and a nod. And if you're not around there, take a look at their website over at www.mr-atari.com and learn more about their quite extensive collection. No whistling required. (bk)

BOOST YOUR JOYSTICK TO THE MAX

Remember the Booster Boy for the Nintendo Gameboy? It was basically a stand with stereo speakers, a magnifying glass and a small arcade joystick that turned your Gameboy into a tabletop arcade machine. Well, sort of. At the time,

it seemed like a fascinating and fresh idea – but it was not a new one. Long before, third party companies thought of boosting your gaming equipment to give you an arcade-like experience. And it goes way back to the Atari Age. Let's take a look. (bk)

One more thing: This Triggerstick was advertised to “make your Atari more fun to play.” And it astonishingly does give the joystick a nicer, more sturdy feel.



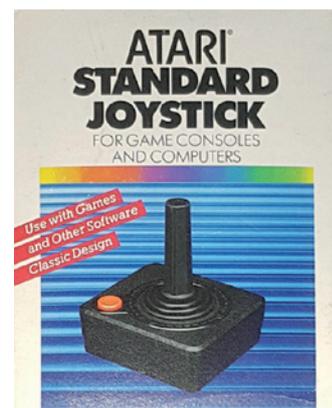
Can't stand it: Unlike some of the following joystick models from other companies, the Atari CX40 had no suction cups. This Stick Stand allows you to put your joystick in, put it on the table and enjoy. It is just one example of some stands that came out for this joystick.



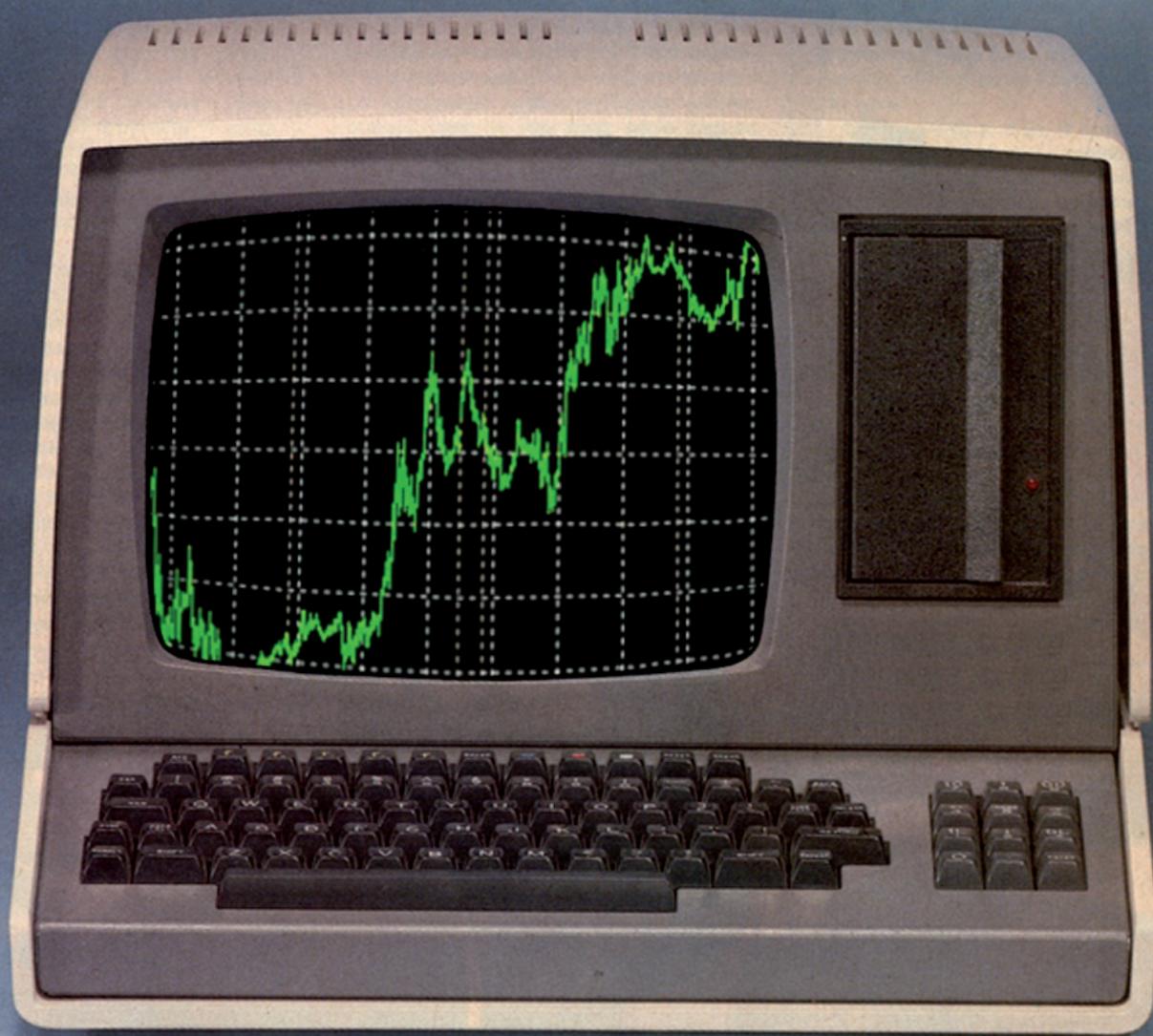


Get a grip: This Arcade Sphere Ball would go on top of your joystick, allowing for a firm grip like in the arcade. It was just a piece of plastic, though. If anything, it made it much more likely to break your joystick by pushing to hard in one direction.

There you go, that's the grandfather of all joysticks: The Atari CX40, originally designed by Steve Bristow. It sold millions and millions of units – which made it an interesting target for upgrades.



WHY YOU SHOULDN'T INVEST IN VINTAGE PCS



One of the most common things collectors of vintage hardware keep saying to each other is this: “It is incredible how expensive those things are now.” And it is usually followed by an example, mostly some price on ebay one recently saw. Of course there was a time when people would rather throw their C64s out than going through the hassle of offering them on an online marketplace just to get a few bucks. A time when you could visit a fleamarket

and you were almost guaranteed to find something for a few quid. But those days are long gone now. More and more people have started collecting vintage hardware, and it seems that prices have exploded. But have they really?

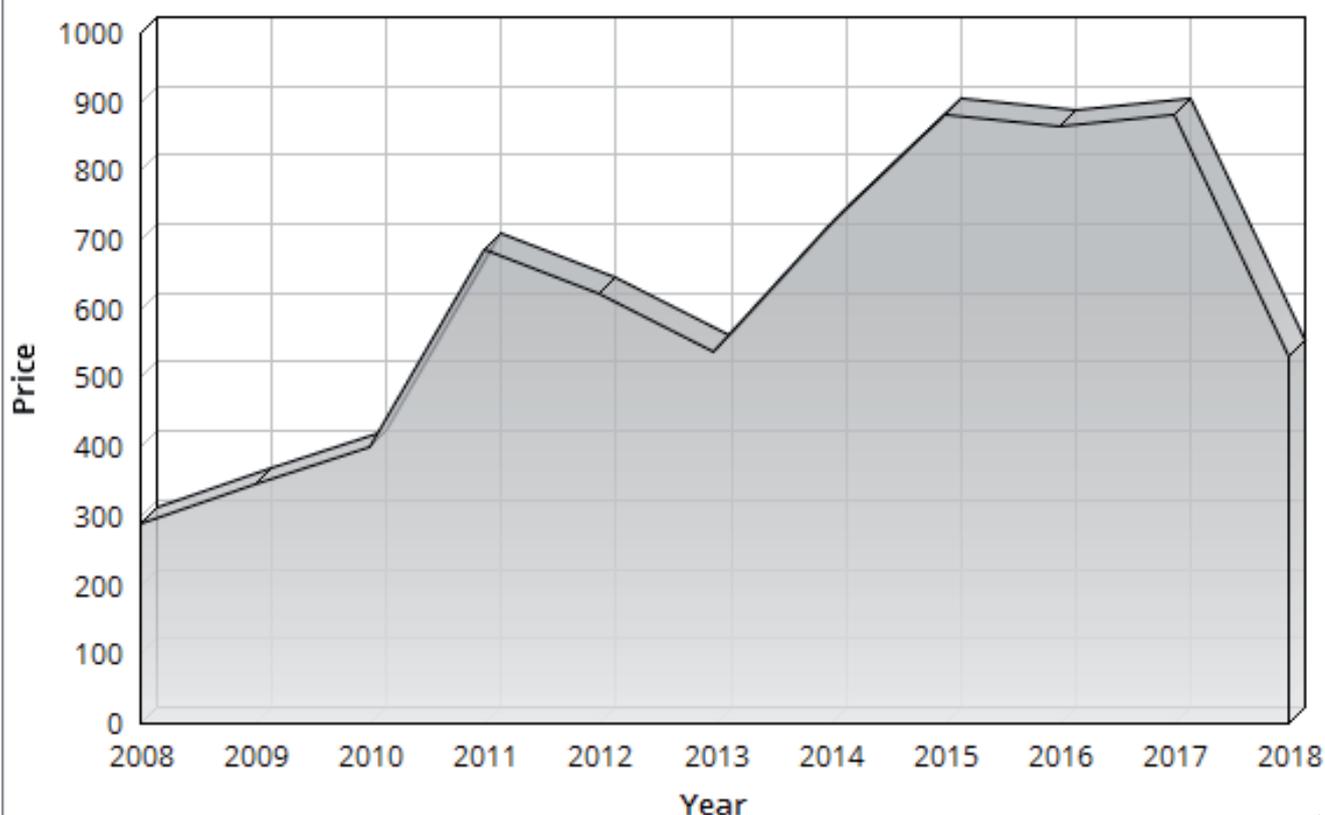
I constantly look out for several vintage computers myself for ten years now and built up a rather extensive excel file full of statistics: What did a Victor 9000 sell for over the course of time in which month,

in what condition and with which serial number? It's far from being complete as I mostly focused on ebay-sales in Germany, but it's certainly a good overview of where prices go. Take the aforementioned Victor 9000 for example. One recently sold for around 96 Euros. I've listed only a few over the course of ten years, but it was always around that pricepoint. There is not much of a following for this machine, so if you happen to be into it, you are in luck – although you don't see them often, at least here in Germany. Rare computers and gaming systems can be expensive, but I won't bet on it. Let's take the Commodore MAX

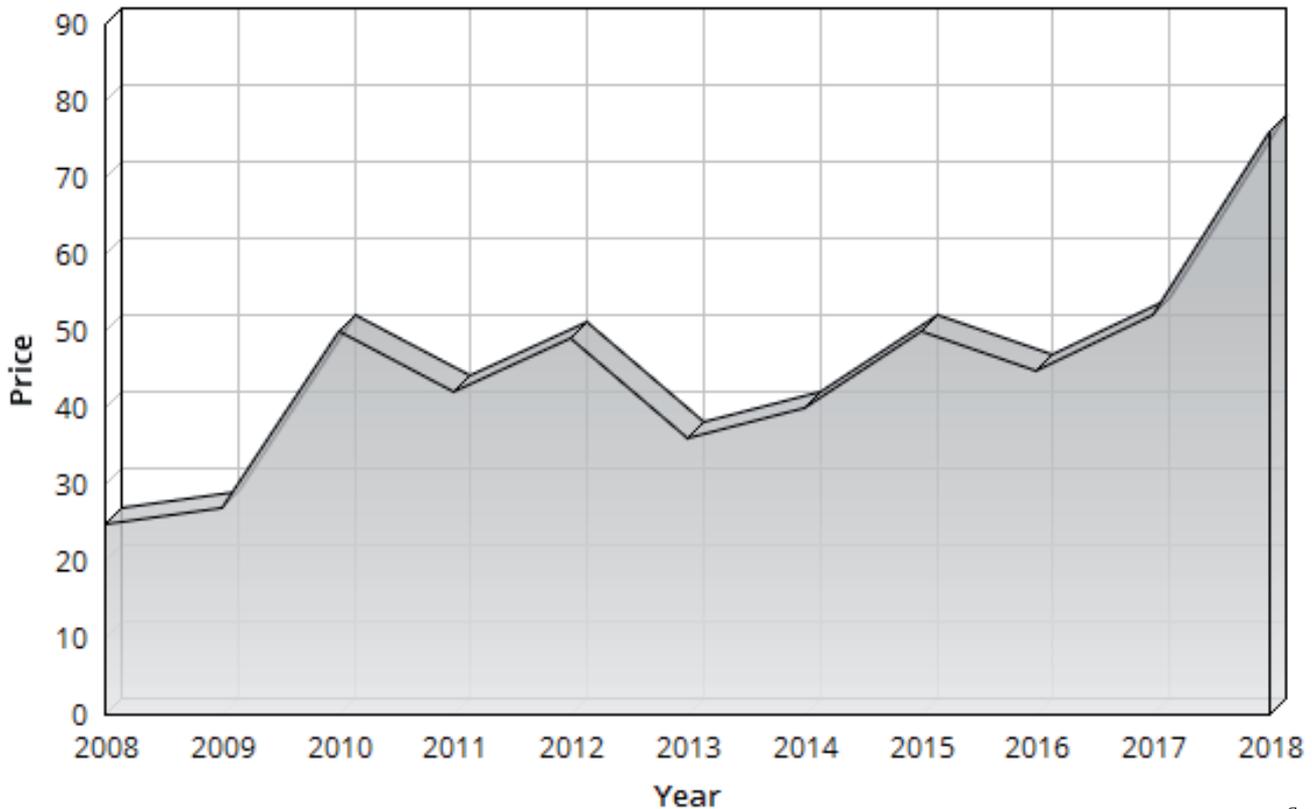
machine: ten years ago, you could easily get one for around 300 Euros. Prices increased to nearly 900 Euros in 2016 and 2017. And then, this year, so far the ones I saw online throughout Europe went for an average price of 500 Euros. And it might decrease even further. Nowadays, vintage electronics have turned not only into a collector's item, but also in some form of investment. Buy them now to sell them for a steep surcharge in a few years. But it doesn't seem to work that way generally. Not every old hardware is getting more and more valuable. Especially not the rather weird ones with a very small fanbase. If you like to stack

Collecting old technology for investment purposes is not a good idea: prices may drop anytime as people lose interest. The MAX machine is just one example of how uncertain this bet is.

Commodore MAX Machine



Video Technology VZ-200

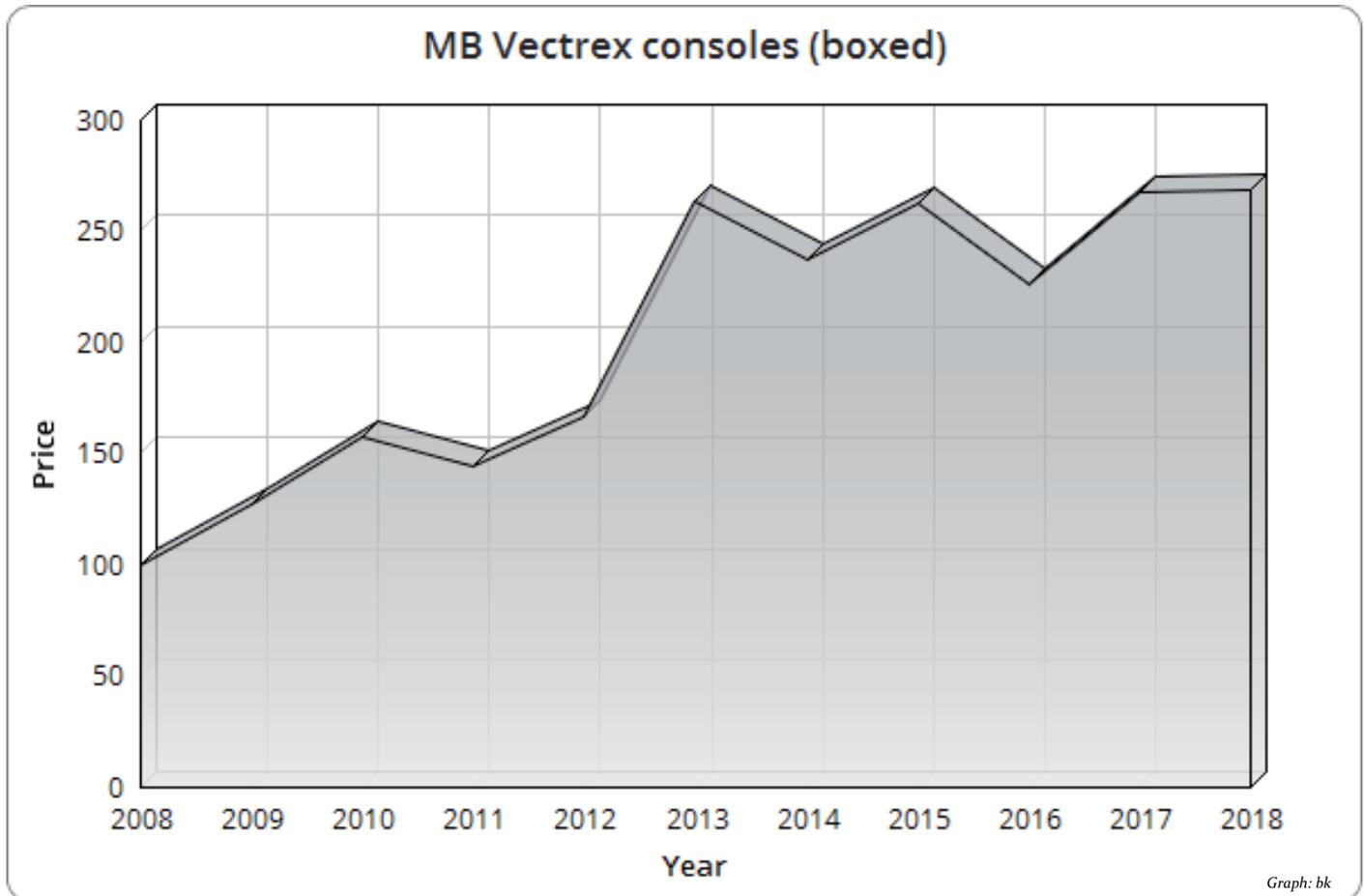


Graph: bk

If you collect rather strange computers, you probably won't have anything to complain about regarding prices.

Video Technology's VZ-200 because it makes you feel good, you could buy even large sets for between 30 and 50 Euros over the last years. This year, there have been only few, yet some mint condition units for sale, so the curve might look like you can bet on their increasing in value – but they most probably won't. Let's face it: if you're not from Australia, where there seems to be at least some followers of this little fellow, this machine is just obscure and not sought-after. And in turn, it's just not expensive. With C64's and C128's, it's a whole other story altogether. They sold in the millions, many people have fond

memories about them and if many people want something, the price usually goes up. But will it be a long-time story? If you look for SABA Videoplay consoles, the German version of the Fairchild Channel F, you'll find nearly complete sets with everything boxed for around 100 bucks or even less. They were more expensive some years ago. But it seems that those old systems have outlived the generation that was interested in them, so now only very few people are looking out for those things. And the price drops. This might also one day happen to Commodores and Ataris as well. But not now. And if you only look at their



prices, you might get the impression that these are things worth investing your money into. But they are just not representative for all the other vintage stuff that is out there. So far, there seems to be two formulators for increasing prices:

1. Something sold millions and defined a generation, many people feel nostalgic about it so they'd like to relive their childhood and so the price goes up.
2. Something was a commercial failure and therefor is regarded as cult item, so it's sought-after and considered valuable because there were not that many units out there. But it really depends on your field of

interest, as described before. There are still many vintage computers that can still be bought for a decent price. It also depends on the country you buy them in: If you're looking for an Atari 400 in Germany, you'd have to pay at least 100 Euros. If you looking for the NTSC machine in the US, you'll find them for 20 to 50 Dollars. So let's face it: Collecting these old things is crazy and it should be all about the fun, not about investing your money. We already see that people lose interest in some of these items sooner or later, and their price will drop. So just don't bet on them. It won't bring you the joy you're seeking. (bk)

Prices for the Vectrex console are going up continuously, maybe fueled by an growing homebrew scene. But how long will this go on?



What better game to review in this issue about artificial intelligence than *Dawn of Kernel*, where a virus has infected the network of a mining base of planet K3E-NL at the Leonis system. The workers have been evacuated and only you, equipped with a small but heavily armed space ship, go there to investigate the matter. And as you might have guessed already, if there is a warm welcome, then it's only because there are so many shots fired at you from the base defense system. *Dawn of Kernel* is not a sidescrolling game, but kind of a platformer where you have to clear each screen

to progress further. It uses a nice palette of 16 colors and needs just 64 KB of RAM – no multiloading. So no matter if you want to play on your CPC 464 or your GX4000: It's just bombs away for you! Programmer Juan J. Martínez is not new to coding, as he also did *Rescuing Orc* for the Commodore 64 and *Magica* for the CPC before. Both were platformers, too. When it comes to the inspiration for his new game, Juan explains: “The gameplay will be inspired a bit by *Cybernoid*, *Starquake*, *Jet Paco*, and few other ideas that I hope will play well together. It looks quite like *Cybernoid* al-

ready, but it'll be more than that. It will be more about exploration and less a frantic shooter." And once he started in early January 2018, he got in a fever and finished the game in July. "This one took longer than expected, but I think the results are worth it", he adds. And they sure are: The engine puts out some nice 25 fps action, however, Juan claims that it's not ideal for a shooter. But you will not notice this as you fly through the base, trying to avoid the enemy bullets, evading just in the right moment to fire back at them between their shots. "It's all ASM, all my game engines are like that. I only write high level logic in C, and very often I end converting that to ASM too, once I proved the idea works", says Juan. This results in a smooth gameplay and firm controls. As you start out with a standard weapon, you'll receive more powerful shots throughout the levels, which are



much needed later on. However, not everything can be shot at: force fields prevent you from taking certain ways, so you'll have to solve some small puzzles to disable them, too. As for the title graphics and intro, Dylan Berry did an amazing job here. The sound is also great, and it might not be the worst thing that this game doesn't scroll after all. And the best part: It's free! But you can still buy a collector's edition from Polyplay, if you fancy one. More games to come from Juan for sure! (bk)



➤ *I've added text events so the AI can talk to the player and provide a bit of story. Not really a lot of it, but I think it looks nice.*

Juan J. Martínez

HUNTER'S MOON REMASTERED (C64)



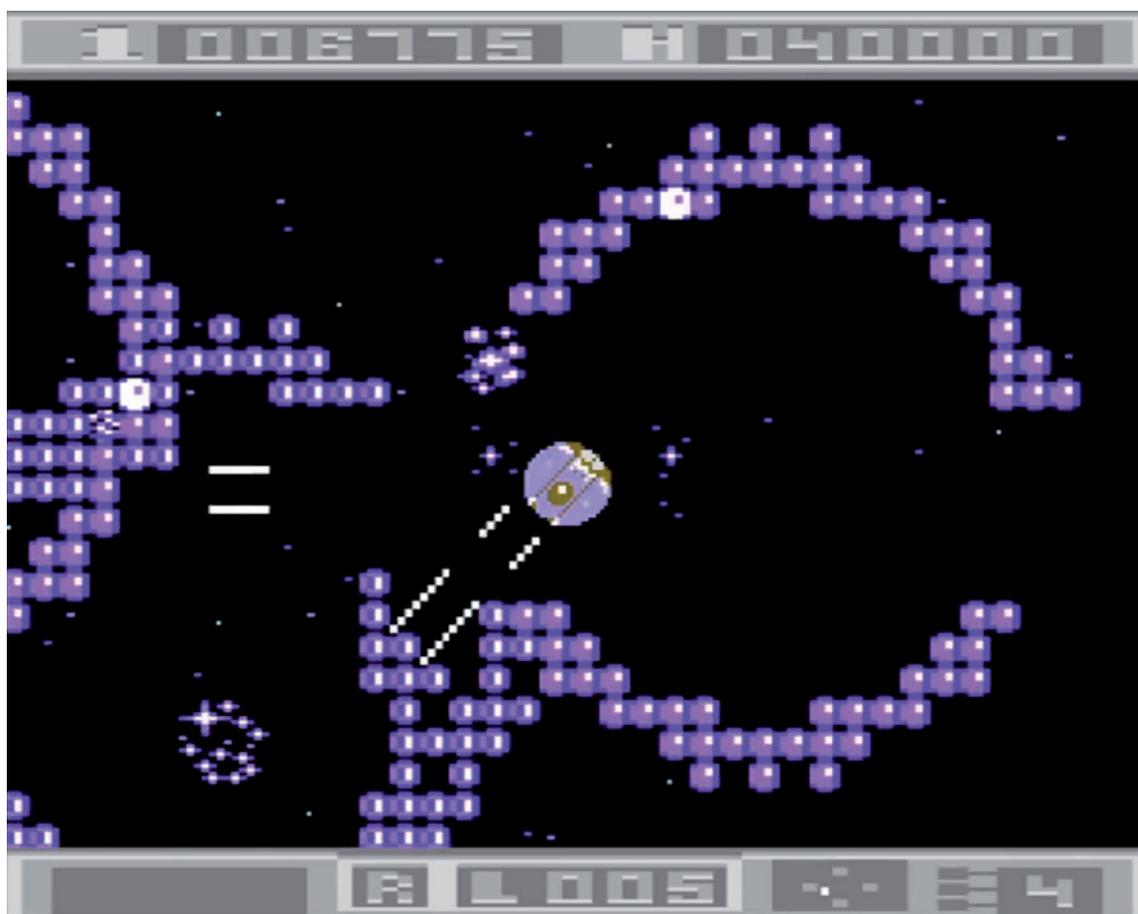
It's been a while since the last time I sat before the C64, staring at a cinematic in fascinated disbelief at how much effort one can put into an intro. That was back when I loaded *The Last Ninja III* for the first time on the C64. And then a few weeks ago when I tested *Hunter's Moon Remastered*. The small, but animated screens, the text lines and the awesome music by legendary SID composer Matt Gray just suck you right into the game, creating an atmosphere that would also well suit *Blade Runner*. When the last lines of

the intro appear onscreen: "Far from home... far from ..." and then the music adds to the tension as the title pic appears and the music kicks in full gear, you have to admit that all of this is very well orchestrated. And you find yourself wondering if any of this was in the original version from 1987 – just to check and see, of course it wasn't. The game itself is 31 years old, and just received a complete overhaul by Thalamus digital, you successfully launched a Kickstarter campaign and collected around 20.000 GBP to bring this

game back the way it was meant to be played from the beginning. But if you like, you can still swap to the original version in the menu screen. After all, this game has quite a cult following, and a larger one than I ever suspected judging from the success of the Kickstarter. The original already offered an interesting balance between strategic planning and shooting things, incorporating some procedurally-generated content. The goal for the player with his flounder-flat starship is to find his way back home, searching in many different systems for sparkling jumpgates while shooting at enemies who constantly build barriers to prevent

him from moving around altogether. This remake features 21 star systems with 180 levels in total, a parallax starfield background, new in-game music by Matt Gray and the aforementioned stunningly atmospheric intro sequence. Oh, and if you make it, you will be rewarded with a very fine outro sequence, too. To fit all that in, the game comes on cartridge for the C64, but also as download for use in an emulator or 1541U. This was the only way to make enough room for 50 new levels, five new star systems, new music and new playing modes. Oh, and the cinematics. The aim of each level is to blast through the hive-like structures

There is a lot going on onscreen in later levels. Be careful, as every bullet you'll oversee will be lethal. That makes Hunter's Moon quite challenging at times, but it's also somehow rather motivating to keep getting better.



This screen is part of the animated end sequence once you completed the labyrinth of star systems the game throws at you. It is very satisfying to look at.



and grab the so-called starcells, a task made more challenging by the invincible worker cells which patrol the cities, repairing any damage inflicted. These workers also bring the hive's defenses to life, causing them to spew deadly spores that can only be resisted by using your ship's trusty shields.

And how does it play? If you never played the original, you will need some time to get used to the gameplay, as it is rather unique. One might compare some elements to the arcade classic *Bosconian*, but *Hunter's Moon* is really a breed of its own. What helps find the right way to the starcells of each level is the small radar scope at the bottom right of the screen. All the cells are highlighted as white dots in there. Steering the ship around might be a tad more comfortable with a joystick, but that is

something you might disagree with. Nevertheless, Martin Walker did an amazing job here with the design, the coding, graphics and the SFX, with some additional code for the remastering by Dan Hotop. The scrolling is smooth, but it will take some time to get into all of this and really appreciate how well everything fits together here. Also, it's very crowded in later levels, with bullets coming after you while you have to avoid the workers and blast your way free. It's easy to make mistakes, and even one small oversight can cost you all your lives rather quickly. So it's not a game for people who have not that much patience anymore. It needs a lot of practice to master. If you're not sure if the boxed collector's edition by Protovision is for you, then grab the download at least. It's well worth the 13 USD they ask for it. (bk)

GAME ON

SPIRE OF THE ANCIENTS (ATARI 7800)

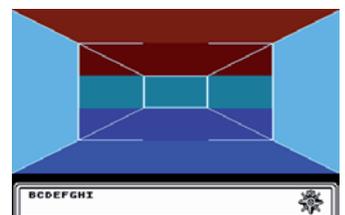


It's always a pleasure to see what skilled programmers can get out of the Atari 7800: This dungeon crawler is called *Spire of the Ancients* and is not yet finished. It's rare that we take such previews into this magazine, but this is just too good to not talk about it. Coder BHB Smith says: "I don't think I'll quite reach the complexity and level of interaction of *Dungeon Master* but I think the real-time enemies and puzzle elements will keep it fresh and elevate it above your average turn-based *Wizardry* clone and hopefully above the standard of game that the 7800 can be thought capable of." And in its current state, it surely does look good already. Although it sounds like a game for the 2600, so the coder is still learning how to make good use of the Pokey.

Taking into account that everything started with just a very basic 3D maze in August 2016, this game has come a long way. And it's slowly getting there, with the coder pushing hard to finish this project as the feedback from the folks on AtariAge he shared this with was overwhelmingly positive.

With some enemies to fight, a couple of zones to explore and some flickering torches at the walls for the cozy dungeon atmosphere, the current demo of this game is already looking very promising. Even more so as there is really not that much graphically on the 7800 to match this nice looking gem. "My focus at the moment is to draw up graphics for new enemies to fill the maps with", explains Smith. And they, too, look quite nice. (bk)

This is what the game looked like at the very beginning. It came a long way since then, hopefully to be completed in early 2019.



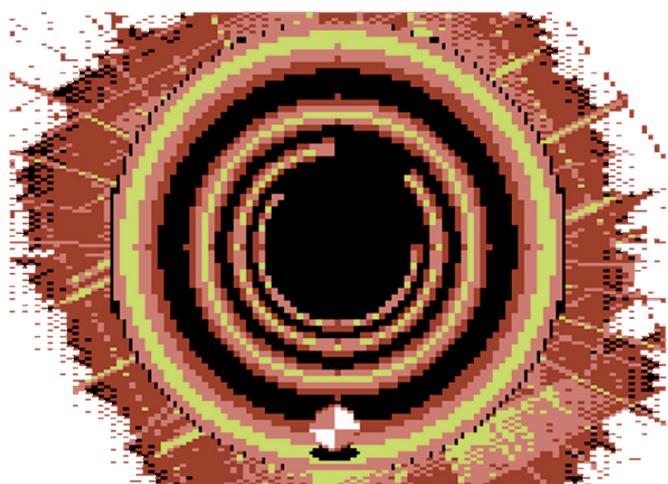


If you were not into Atari at all, you probably won't know *Yoomp!*. In this case, this C64 game comes as a surprise for you and you have nothing to compare it to – so let's start our review with that premise. The game is an arcade-style indie title that is all about jumping around in a three-dimensional tunnel with a ball while avoiding to fall in some black holes. It's like *Trailblazer* on steroids. Maybe not as fast, but far more playable. But as the tunnel is scaling, this meant some serious coding for programmer Zbigniew Ross: "Scaling the image was a real problem. For example, Hewson's *Eliminator* achieves a similar effect by only drawing every second line, but the overall result would not work for *Yoomp!* as the image would be too dark and fragmented." So instead, he used sprites: "In the multicolor mode, one pixel has a width

of 2, so by enabling double height for the sprites, these pixels become square. This not only simplified my calculations, but this way the scaling would be done 'in hardware'. The resulting tunnel area is drawn using 6 x 4 sprites, giving the tunnel a size of 144 x 144 pixels." So far, so technical. But does it work? Can you play this game and like it? Yes, you can. It looks like a huge demo effect that you can play along to, and it's fun to do so. As the levels get more and more difficult the further you progress, you will curse that stupid little ball a lot of times, but the levels are never unfair. With enough experience, you can progress quite far and enjoy it.

The music by Michał Brzeski aka MCH goes for trance-techno vibes as the original does, yet it's not that raw. If you don't know his works yet, listen to "Mario is dead", a song he

composed together with Jammer. This is just an amazing tune. But what if you already know the Atari version, how does *Yoomp!* feel then? Well, the first thing you'll notice is the different music. Although MCH did great with this composition, there are no sound effects like in the Atari version that gave the game a nice atmosphere and also added a great and raw beat to the music. The next thing concerns the playfield: it is considerably larger on the Atari due to the fact the scaling of the tunnel can be achieved in hardware on that machine. But you'll also notice that some effects like the shaking seem not to be as intense on the C64 as they are on the Atari. And due to its color limitations, the good old breadbin can't brighten or darken colors as the Atari can. So if you have the choice, the Atari version is the one you'll want to play. But if you just adore your 64, this game, either on disk or cartridge, is a very nice addition to your collection, still technically impressive and very playable. (bk)



Some thought it to be impossible porting Yoomp! on the C64, but

Zbigniew Ross did a solid job there. However, there are some noticeable differences between the original Atari version and the new one for the breadbin.



While Psytronik sells the disk version, RGCD has cartridge collectors covered.



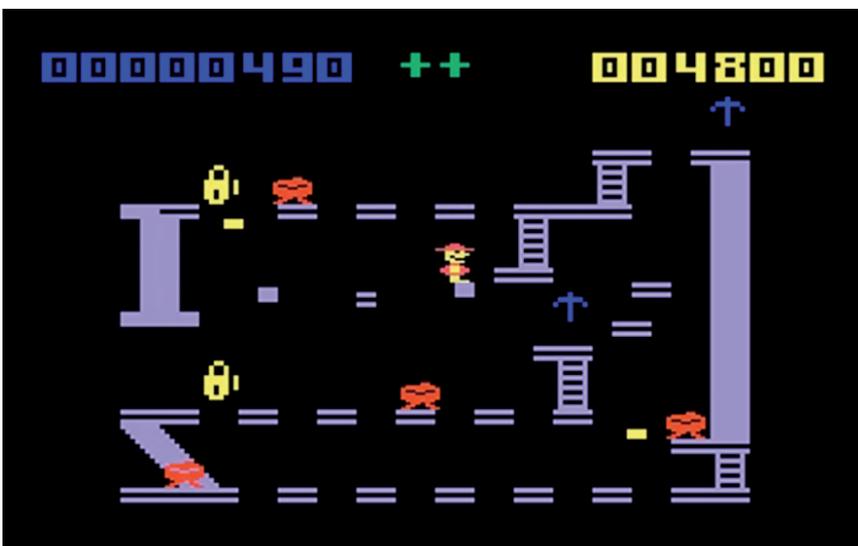
MINER 2049ER (INTV)



Eleven new levels done by the original designer Curtis Mikolyski are waiting to be explored.

Elektronite has quite a reputation for waking up well-known game designers to dust of their skills and put some more love into their classic games to be released on the Intellivision console. More than in Europe, this old Atari-contender has a very loyal following. And so the studio approached Curtis Mikolyski, who did the infamous *Miner 2049er*

levels back in the day, not only to license the game, but also to create some new levels for it. And that he did: eleven new ones were especially created for the new Intellivision port of the game. Those new challenges will keep you busy for a while, as they are not easy to master at all. But it's fun to follow Bounty Bob back into the abandoned Uranium mine. The highlight: Shooting yourself out of a cannon. Óscar Toledo Gutiérrez did a great job with this conversion, which benefits from the all-new levels if you are already an experienced *Manic Miner*. As we publish this issue, the game was not yet available but still marked as “coming soon” on Elektronite’s website, however we had the chance to playtest this game at a retro meeting and were impressed. The price is also impressive: You may expect it to sell for around 70 USD. (bk)



GAME ON

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HOVER BOVVER (INTV)

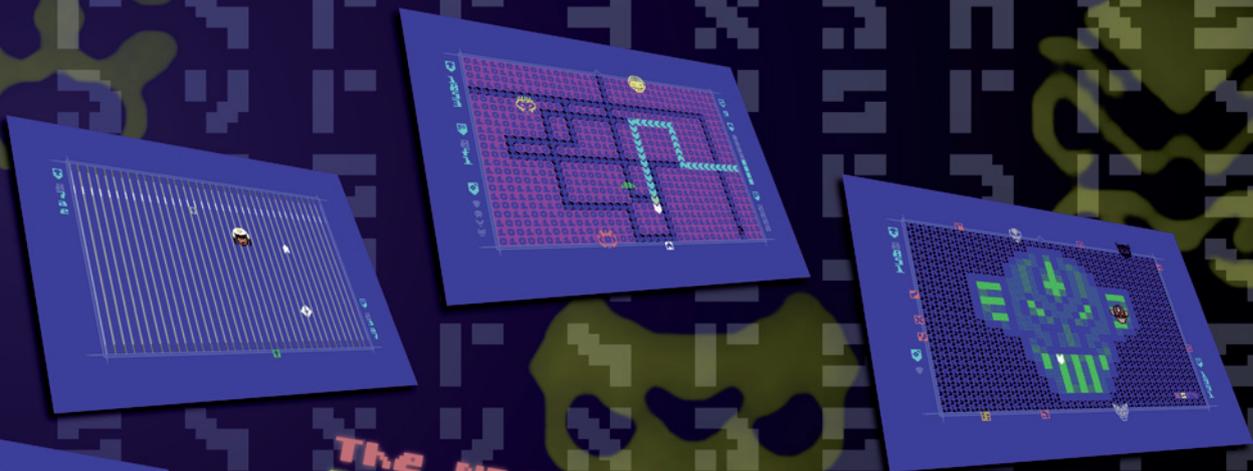
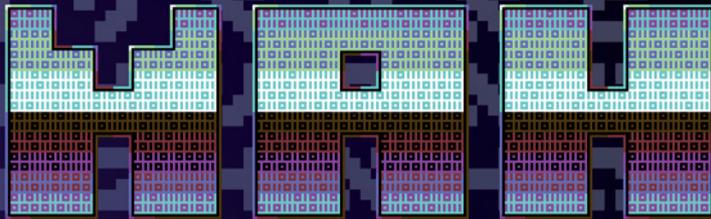


If you are a fan of Jeff Minter, you will know *Hover Bover* – another game that never made it on the Intellivision back in the day. But now you can mow all the lawn you want on Mattel's videogame console. Just avoid your angry neighbor and his dog and all will be fine. The game also talks if you have an Intellivision Voice Synthesis Cartridge. The speech samples, yelling neighbors and barking dogs sound astoundingly fresh and clear – it's nothing like the old "B17 Boomber" you might think of. This is really well-made. All in all 16 lawns await your treatment. This version was also done by Óscar Toledo Gutiérrez in a very short period of time. The Mexican programmer has a heart for rather obscure hardware and is very active on the Intellivision right now. If you want to buy *Hover Bover*, you'll have to look for it over on www.naberhood.com.

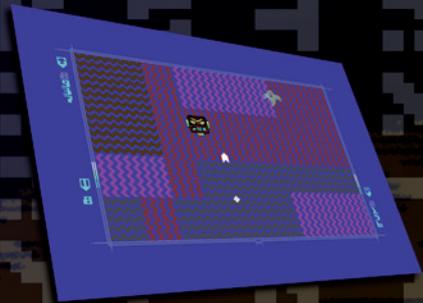
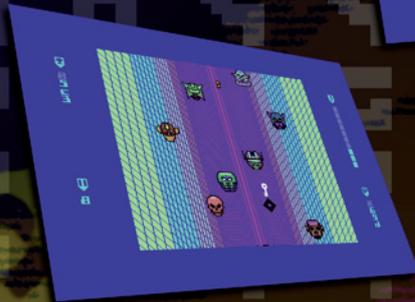
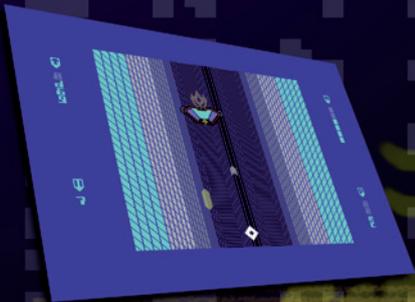
and spend 70 USD for it complete in box with manual. And it comes with two overlays, too. (bk)

Turns out Jim does mind when you take his mower without permission. You knew?



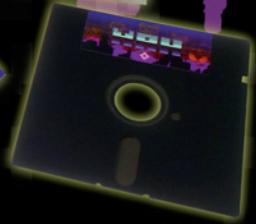


The world is
DEVASTATED.
And on the brink of
TOTAL DESTRUCTION.
YOU are Mankind's
LAST HOPE.

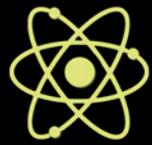


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