

Permutation City By Greg Egan **Permutation city review** Machine learning isn't really learning.

## **Permutation City kindle direct**

Consisting of more science than story as if Egan was more concerned in establishing the credibility of his vision of a world where humans clone themselves electronically and live in virtual worlds to computer programmers and quantum theory boffins than make any kind of appeal to people like me who simply want a good story! Often dialogue consisted of one character (taking on the role of the author) explaining to a less well informed character (the reader) how the science or technology worked and I found this method very wooden. **Book Permutation city-data** The story only really begins in the last fifty pages and finally.

## **Permutation cityq**

In particular the hypothesis that any system which implements the same computation as the human brain would have the same experiences. **Permutation cityworks login** Egan argues that the notion of a computation is sufficiently broad (undefined?) that if we take this idea seriously we have to accept that almost any situation we can imagine experiencing is being experienced by someone.

**Permutation cityq** If you want an emotional soap opera or you stop listening as soon as people talk about abstract things like math or philosophy don't even bother reading the blurb on the back.

**Permutation City book** Forget everything you read about virtual reality.

## **Permutation city review**

Were for the benefit of the survivors Poor bloke is being digitized (or something)There are also many brilliant other concepts in this book. **Permutation City booklet** Further the conceit at the heart of the novel and the fulcrum for all of the action is a theory (the so-called dust theory) that is ridiculous balderdash (and if taken seriously basically an excuse for moral heinousness). **Permutation cityworks login** Egan evaluates the challenges that would arise if you were able to copy yourself personality memories and all into a virtual world in a computer and how that copy would interact with your original meat version how the copy would adapt to the limits of its new environment and what the legal and moral obligations would be in interacting with such copies. **Permutation City kindle unlimited** The final third of the book is still beyond my comprehension but the first two thirds present two carefully-described ideas that are worth examining - Dust Theory and the TVC universe. **Permutation city book** Permutation City details attempts in the mid-21st century to create an artificial universe based in the Autoverse a computer-generated environment where digital copies of wealthy people can enjoy a limited form of immortality in virtual reality. **Permutation City booker** Mysterious entrepreneur Paul Durham is pitching to aging millionaires a far-superior and more secure version of the Autoverse and also hires solo programmer Maria to create a digital simulation of the early conditions on Earth that gave rise to life. **Book Permutation city** During his experiments with his digital copy he discovers that even if he rearranges the chronological order of distinct slices of the copies' consciousness his copy still experiences events in an internally-consistent way that defies expectation. **Permutation City book** To an outside observer these ten seconds had been ground up into ten thousand uncorrelated moments and scattered throughout real time - and in model time the outside world had suffered an equivalent fate. **Permutation city book** But if the pattern that is me could pick itself out from all the other events taking place on this planet why shouldn't the pattern we think of as 'the universe' assemble itself find itself in exactly the same way? If I can piece together my own coherent space and time from data scattered so widely that it might as well be part of some giant cloud of random numbers then what makes you think that you're not doing the very same thing?Is your mind completely blown at this point? I had to read this through these passages several times attempting to process them. **Permutation cityq** It is a variant

of quantum mechanics but goes a full step beyond that by postulating that the universe can and does take shape from pure randomness each and every moment of our subjective existence. **EBook Permutation city national** In a six-dimensional TVC automaton you can have a three-dimensional grid of computers which keeps on growing indefinitely - each with its own three-dimensional memory which can also grow without bound. **EBook Permutation city-data** And when the simulated TVC universe being run on the physical computer is suddenly shut down the best explanation for what I've witnessed will be a continuation of that universe - an extension made out of dust. **Book Permutation citywide** Maria could almost see it: a vast lattice of computers a seed of order in a sea of random noise extending itself from moment to moment by sheer force of internal logic "accreting" the necessary building blocks from the chaos of non-space-time by the very act of defining space and time. **Permutation cityquartier** The rearrangement was in time as well as space; Durham's universe could take a point of space-time from just before the Big Crunch and follow it with another from ten million years BC. **Permutation cityworks login** Moreover the artificial life that Maria set the initial conditions of called Autobacterium Lamberti has gone through billions of years of virtual evolution using the unlimited computing power of the TVC universe resulting in an entirely new intelligent species. **Permutation City kindle unlimited** As they start to investigate the founding principles of their world Paul Durham and Maria become concerned that their experiments will threaten the fundamental principals of the TVC universe due to a very byzantine thought process that suggests to the best of my understanding that it is the understanding of a given universe and its physical laws and properties that determine those laws and properties. **Permutation cityworks login** And if the TVC rules are pulled out from under us...What a fascinating question - what happens when the artificial life you've created starts to investigate its own origins? Will it guess correctly? Or make up its own explanations religious or otherwise. **Permutation city analysis** The end of the book involves Paul and Maria's efforts to make contact with the Lambertians and convince them that they are indeed creations of humans and that they should believe in our universe's laws in order to maintain them. **Book Permutation city national** It was pretty difficult to follow this part even after two listens but if you could understand Dust Theory and the TVC universe then perhaps this will make sense to you as well. **Permutation city book** While many books may have more entertaining characters or plots Permutation City is one of the most ambitious explorations of digital consciousness artificial life and the fundamental assumptions behind our quantum universe that I have ever encountered. **Book Permutation city furniture** Paperback How do you define 'science fiction'? From a quote from an interview with sci-fi author Ted Chiang: "Sometimes people who read my work tell me 'I like it but it's not really science fiction is it?'" he says. **EBook Permutation city national** " After Star Wars forever made the genre synonymous with what Chiang calls "adventure stories dressed up with lasers" people forgot that science fiction includes the word "science" for a reason: It is supposed to be largely about exploring the boundaries of knowledge he says. **Permutation City booker** Because sure I've read science fiction with more outlandish ideas and I've read science fiction that did a better job of convincing me of the possibility of its plot and setting. **Permutation city book** Here's an example from classical physics: Newton's law of gravitation is expressed with the equation  $F = G \cdot m_1 \cdot m_2 / r^2$  while Coulomb's law (of electrostatics) is  $F = k \cdot c_1 \cdot c_2 / r^2$ . **Permutation cityq** Surely such a coincidence suggests some underlying unity to the universe? If we think of physics as "the music of the celestial spheres" then such commonalities suggest there's some invisible celestial composer God or otherwise giving it order. **Book Permutation city-data** Which is just wow kinda awesome yeah? Paths the particle COULD have taken - but didn't - interfere with other such paths not-taken to arrive at the actual path??? WTF? For reals? Apparently. **Book Permutation citytime** When you realize this when you realize these bizarre mathematical abstractions end up accurately predicting real world physical phenomenon it doesn't seem so outlandish to say well maybe there really are INFINITE other physical universes for all these other paths including the one where our particle Mr. **Permutation city book** Could there then be some meta-universe or at least some metaphysical rules that must be obeyed in these inter-universe interactions? What might this meta-universe be

like then? What might those metaphysical rules be? This is what Greg Egan does. **Book**

**Permutation citywide** How would people discover the truth? And what effect would that discovery have on them? And how do I write this so it sounds actually plausible?" That is a Greg Egan novel in a nutshell. **Permutation City booker** And I can give you Permutation City in a nutshell too: it's primarily about a man named Paul who traps a Copy of himself in the virtual world in order to undertake some consciousness experiments. **Permutation City booklet** How would someone find this out? And finding it out what would they do with this knowledge? What follows is a compelling exploration of consciousness religion posthumanism immortality and yes the science and math behind some of these ideas. **Permutation citymd urgent** The first problem to summarize is that if you don't know any higher-level physics or mathematics you probably haven't done any of these metaphysical thought experiments yourself so you're not gonna geek out as much that someone actually bothered to turn them into a story. **PDF Permutation citytime** Without such a basis he might as well just write "Yeah okay inside every electron there's a micro-universe in which talking unicorns poop rainbows at each other in an epic battle to reign as the supreme unicorn of the micro-universe but it turns out these rainbows are actually the origin of conscious thought inside our brains. **Permutation City ebooks online** He communicates ideas that could easily seem as outlandish and stupid and nonsensical as "appleapple app le;;; BANANA!" but by bothering to give them a foundation in science & mathematics he grants them an elegant verisimilitude. **Permutation cityonfire** Does a Copy have the same rights as an organic human being? There's several poignant interactions between one of the main characters and her mother who is resistant to the idea of becoming an immortal Copy even when faced with her death. **Kindle Permutation citywide** The first involves an unfortunate plot choice wherein a male character invents something extremely technologically advanced (and far-fetched) and he hires a female coder to help him make it a reality. **Permutation city book** I think it's a big misunderstanding to believe that a) something fluid can be made digital--that somehow a snapshot of the brain at any given moment would capture its total functionality and b) something physical (the meat of the brain the physicality of the neurons and their connections) can be digitized. **Permutation city book** Dick's iconic 1968 sci-fi novel *Do Androids Dream of Electric Sheep?* posed an intriguing question in its title: would an intelligent robot dream? In the 53 years since publication artificial intelligence research has matured significantly. **Permutation cityworks login** And yet despite Dick being prophetic about technology in other ways the question posed in the title is not something AI researchers are that interested in; no one is trying to invent an android that dreams of electric sheep. **Permutation city book** Or is there? What if reason and logic are not the source of intelligence but its product? What if the source of intelligence is more akin to dreaming and play? Recent research into the neuroscience of spontaneous fluctuations points in this direction. **Permutation city by greg egan** The quest for artificial intelligence grew out of the modern science of computation started by the English mathematician Alan Turing and the Hungarian-American mathematician John von Neumann 65 years ago. **Book Permutation city national** Does the brain transmit and receive binary information like a computer? Or do we think of it this way because since antiquity humans have always used their latest technology as a metaphor for describing our brains? There are certainly some ways that the computer-brain metaphor makes sense. **Permutation cityq** For starters this is because neurons do not have fixed voltages for their logic gates like transistors that can determine what will activate 1 or not activate 0 in a given neuron. **Permutation cityworks login** What might be the source of these spontaneous fluctuations? Recent studies in the neuroscience of spontaneous thought suggest that these fluctuations may be related to internal neural mechanics heart and stomach activity and tiny physical movements in response to the world. **Permutation City Science Fiction fantasy name** What if these anomalous fluctuations are at the heart of human intelligence creativity and consciousness? This is precisely what neuroscientists such as Georg Northoff Robin Carhart-Harris and Stanislas Dehaene are showing. **Book Permutation citytime** AI has been modeling itself on neuroscience for decades but can it follow this new direction? Stanislas Dehaene for instance considers the computer model of intelligence deeply wrong in part because spontaneous activity is

one of the most frequently overlooked features of it. **Book Permutation city furniture** Just as an avalanche is a probabilistic event not a certain one the cascade of brain activity that eventually leads to conscious perception is not fully deterministic: the very same stimulus may at times be perceived and at others remain undetected. **Permutation city book** Johnjoe McFadden a Professor of Molecular Genetics at the University of Surrey speculates that spontaneous electromagnetic fluctuations might even have been an evolutionary advantage to help closely packed neurons generate and synchronize novel adaptive behaviors. **Permutation city review** Relatedly Colin Hales an artificial intelligence researcher at the University of Melbourne has observed how strange it is that AI scientists have not yet tried to create an artificial brain in the same way other scientists have made artificial hearts. **EBook Permutation citywide** In my view there will be no progress toward human-level AI until researchers stop trying to design computational slaves for capitalism and start taking the genuine source of intelligence seriously: fluctuating electric sheep. **Permutation cityworks login** Some of his earlier short stories feature strong elements of supernatural horror while due to his popular science fiction he is known within the genre for his tendency to deal with complex and highly technical material (including inventive new physics and epistemology) in an un Greg Egan specialises in hard science fiction stories with mathematical and quantum ontology themes including the nature of consciousness. **Permutation citymeals** Some of his earlier short stories feature strong elements of supernatural horror while due to his popular science fiction he is known within the genre for his tendency to deal with complex and highly technical material (including inventive new physics and epistemology) in an unapologetically thorough manner. **Book Permutation city national** Egan is a famously reclusive author when it comes to public appearances he doesn't attend science fiction conventions doesn't sign books and there are no photos available of him on the web. **Book Permutation city-data** Encompassing the lives and struggles of an artificial life junkie desperate to save her dying mother a billionaire banker scarred by a terrible crime the lovers for whom in their timeless virtual world love is not enough - and much more - Permutation city is filled with the sense of wonder. **Permutation cityq** And the LORD said okay Greg since thou askest so nicely: thy world is but a cellular automaton here let me give unto thee these stone tablets on which I have graven all the rules. **Permutation citymeals** Thy cellular automaton is embedded in this abstract machine which extends a design originated by my servant John von Neumann here's how it works and it will function for all eternity glory be to My name amen. **Book Permutation city-data** Where did Thy von Neumann machine come from eh? I strongly suspect that Thou art no more than a hacky poorly implemented simulated person Who cobbled all this together am I right? And as for the idea that it is going to persist for all eternity makest Thou not me to laugh alleluia. **Permutation City booker** " This is a reference to a medieval Kabbalist who as Kabbalists are wont to do turned everything into language in order to disorient those who use it -people in other words - and paradoxically thereby to free language-users from the insidious power of the language which is actually using them (See: <https://www.> **Permutation cityworks login** The device of using a virtual reality 'Copy' within a virtual reality world - "urine and feces production optional" - is something Abulafia would have grasped immediately as obvious and necessary given the availability of the technology. **Permutation City kindle direct** I can only marvel at how he finds his inspiration for a high-tech tale in an ancient wisdom like Kabbalah and then proceeds to out-Kabbalah even the Kabbalists with his creativity. **Permutation cityq** Paperback I don't read a lot of hard sf because my understanding of science is rudimentary at best but I do tend to enjoy it when I read one that do not go too far over my head. **Book Permutation city furniture** If those conditions are met then my patchy understanding of the scientific details is not too much of an impediment and the bits that get through to me tend to be quite fascinating. **Permutation cityworks login** So it is with Permutation City which had me hooked from Chapter One which takes place inside a computer (no not the plastic casing!) and is told from the point of view of a simulated personality a software version of the protagonist. **Permutation City booker** The story of this book is based on the author's dust theory which posits that: There is no difference even in principle between physics and mathematics and that all mathematically possible structures

exist among them our physics and therefore our spacetime. **Book Permutation city-data** (Wikipedia) If I understand this theory correctly it means that there is no difference between a simulated person (called a Copy in this book) constructed from mathematics and the original flesh and blood person. **Permutation cityq** Without going into the synopsis this book is essentially about what constitute reality an examination of the nature of the consciousness and the implication and psychological impact of digitization of personalities for the original people and the Copies. **Book Permutation city-data** For me the sticking point of this trope is that I do not believe that the digital version of myself would really be me regardless of the accuracy of the backup if I am dead and gone the digital replacement would bring me back to life. **Kindle Permutation city** However the issue is very well explored here: To me spending hundreds of thousands of dollars for the chance to be imitated by a computer after my death is just ... farcical, He twists up so many convoluted knots that relate to the idea of digitized consciousness becoming real that it does nothing but demonstrate how farcical such a belief is, **Permutation City booker** Reading such an elaborate story all about the repercussion of digitized consciousness struck me as a hell of a lot of sound and fury signifying nothing: **Kindle Permutation city national** Those systems in computer science that are called artificial intelligence are truly nothing like actual intelligence: **Book Permutation citywide** They are nothing more than task-based code that gets better at doing its task by optimization: **Permutation city book** There is zero related to actual consciousness or the ability to not just do something but understand what it's doing. **Permutation cityworks login** Often the very long-winded technical details of what was going on went completely over my head. **Permutation City ebooks air** There was also a lack of human warmth or even interest in the novel. **Permutation City booker** One might view this as a fiction analog of Chalmers' view that a computational theory of the mind will entail pan-psychism (more or less). **Book Permutation citywide** If you like philosophy and can handle abstract arguments that make mincemeat of common sense (but aren't absurd) you will like this book, **Permutation City kindle direct** THIS is the sense of wonder I'm looking for in a SF story. **Book Permutation city** How time can be slowed down in the virtual world (the word cyberspace suddenly seems a bit quaint) so that the time in reality just whizzes by. **Science Fiction Fantasy Permutation city national** There are slow clubs and slums for Copies of less well to do people who can not afford the expense of running their virtual counterparts in or near real time: **Permutation City kindle paperwhite** What ultimately makes this book worthwhile for me though is that it is about people and the effects of technology on the human condition: **Permutation cityonatal** This may be the first sf book that seriously consider the philosophical implications of what the author calls conscious software\*. **Book Permutation city national** I am always fascinated by the theme of how technology can change what it means to be human.

## **Book Permutation citytime**

This is a tough book to evaluate, **Permutation City booklet** The characters are two dimensional exposition machines the prose is largely utilitarian and even the plot is pretty flimsy: **EPub Permutation city national** However the book is also an amazingly thoughtful rumination on the philosophical and psychological issues that would arise with translating our consciousness onto a computer substrate: **Permutation city book** It's like a really interesting essay on the Singularity with a fine lace of silly plot frippery around the edges, **Permutation cityofla457** Further Egan was incredibly prescient on a number of points writing in the early to mid 90s (among other ideas cloud computing markets for computing cycles etc. **Permutation cityofws org/paywater** This is probably not my first choice for books about mind uploading but it's a pretty interesting take and worth the read for anyone interested in the subject, **Permutation city book** Also it totally affected my dreams the whole time I was reading it which is always a good sign. **Permutation city book** Paperback Permutation City: Bursting with ideas about artificial life virtual realities digital consciousness etc Originally posted at Fantasy Literature Permutation City (1994) won the John W: **Permutation city review** physical consciousness computer simulations of complex biological systems virtual reality

constructs and multi-dimensional quantum universes. **Permutation cityq** In fact it was so over my head the first time I gave up in defeat, **Permutation cityq** Then it started to bother me - such mind-boggling ideas were worth another attempt, **Book Permutation city** So I listened to the book again and...I think I got some of it, **Science Fiction Fantasy Permutation city** Most books would be content to go with that but Egan is just getting started: **Book Permutation city national** He is stingy with the details but Maria needs the money to help her ailing mother so she signs on, **Permutation city book** The only way for Paul to test the quality of the digital copies of his clients' consciousnesses is to try it on himself, **Permutation city review** But each time he makes a copy they choose to terminate themselves almost immediately. **Permutation city review** After numerous tries he decides to remove their bailout option forcing a copy of himself to remain "alive" and cooperate with him to further the project, **Permutation City epub** Sawyer's The Terminal Experiment but that book took the cheap Michael Crichton techno-thriller route whereas Permutation City is exponentially more intelligent and ambitious. **Permutation City kindle unlimited** There's no way for me to explain it other than to quote the text: Now he was...dust. **Kindle Permutation citytime** Yet the pattern of his awareness remained perfectly intact: somehow he found himself "assembled himself" from these scrambled fragments, **Permutation City epub.pub** He'd been taken apart like a jigsaw puzzle - but his dissection and shuffling were transparent to him: **Permutation cityq** Somehow - on their own terms - the pieces remained connected. **Permutation City Science Fiction fantasy 5** Imagine a universe entirely without structure without shape without connections, **Permutation citymd urgent** A cloud of microscopic events like fragments of space-time ... except that there is no space or time. **Permutation cityofws org/paywater** What characterizes one point in space for one instant? Just the values of the fundamental particle fields just a handful of numbers, **Permutation cityofpsl** Now take away all notions of position arrangement order and what's left? A cloud of random numbers: **Permutation cityq** It may be completely outlandish but I give Egan kudos for sheer daring, **Permutation City booker** What was he taking when he came up with that? I'm pretty sure I haven't seen that in hard SF of the time as this was written back in 1994, **Permutation citymax** He labels this bizarre concept Dust Theory and this forms the foundations for an even more dazzling idea that of the Turing-von Neumann-Chiang (TVC) universe. **Book Permutation city-data** The only way to explain this is to quote Egan again at length: There's a cellular automaton called TVC, **Permutation City booker** In two dimensions the original von Neumann machine had to reach further and further - and wait longer and longer - for each successive bit of data, **Permutation city review** By this point Egan had either excited computer science and quantum physics geeks into paroxysms of pure ecstasy or driven liberal arts majors running screaming in the other direction. **Permutation city book** Initially I just couldn't get it but after transcribing it I find it makes some sense if you accept the initial assumptions (a big if of course): **Permutation city book** But believe it or not this is still the halfway point of Permutation City and things get EVEN MORE MIND-BOGGLING as it proceeds, **Book Permutation citywide** The question arises of whether the TVC universe is infinite or will collapse from entropy as most theorists expect of our own universe: **Permutation cityq** A hundred billion years a hundred trillion; it makes no difference it will always be expanding, **Permutation City ebook** Actually 'expanding' is the wrong word; the TVC universe grows like a crystal it doesn't stretch like a balloon. **Permutation City bookkeeping** Stretching ordinary space increases entropy; everything becomes more spread out more disordered: **Permutation cityq** Building more of a TVC cellular automaton just gives you more room for data more computing power more order. **Permutation cityq** Ordinary matter would eventually decay but these computers aren't made out of matter. **Kindle Permutation city** There's nothing in the cellular automaton's rules to prevent them from lasting forever, **Permutation cityworks login** Durham's universe - being made of the same "dust" as the real one merely rearranged itself. **Permutation cityofws** And even if there was only a limited amount of "dust" to work with there was no reason why it couldn't be reused in different combinations again and again: **Book Permutation city-data** The fate of the TVC automaton would only have to make internal sense - and the thing would have no reason ever to come to an end.

**Permutation city review** In Part Two the story jumps forward in time to after the TVC universe now commonly known as Elysium has been created and six thousand years have passed internally, **Permutation cityofla457** They are insect-like group-minded and increasingly inquisitive about their world, **Permutation cityworks login** However they are unaware of the creators humanity or that their world was created by artificially: **Permutation cityworks login** So as the Lambertians begin to examine their world more closely they are undermining the laws set in the Garden-of-Eden configuration: **Permutation City ebook** Here are some excerpts:I think the TVC rules are being undermined - or subsumed into something larger: **Permutation City epub reader** Do you know why I chose the Autoverse in the first place - instead of real-world physics? Less computation, **Permutation cityq** I thought: in the unlikely event that the planet yielded intelligent life they'd still only be able to make sense of themselves on our terms: **Permutation City book** It never occurred to me that they might miss the laws that we know are laws and circumvent the whole problem. **Permutation City epubor** They might still come up with a cellular automaton model - complete with the need for a creator. **Permutation City Science Fiction fantasypros** If they successfully explain their origins in a way which contradicts the Autoverse rules then that may distort the TVC rules. **Book Permutation city national** Perhaps only in the region where the Autoverse is run - or perhaps everywhere, **Permutation cityworks login** Flipping the perspective from the created to the creator is just one of the many mind-expanding ideas that Egan seems to have in endless supply: **Book Permutation city** My mind was somewhat overwhelmed by this point but I can't say for sure if it's the fault the writer so much as my own ability to understand: **Permutation cityq** Notes on the Audible version:Just as he was for Quarantine narrator Adam Epstein really is hopeless especially his atrocious Australian German Italian Russian and Chinese accents, **Permutation City ebooks air** It would be one thing to do all those accents in the most stereotyped and insulting way possible but he somehow manages to switch accents for the SAME CHARACTER mid-dialogue: **Permutation cityofcf** Sometimes I was reduced to tears of laughter hearing how awful they were. **Permutation city book** It makes me wonder if he modeled his accents on the bad guys in action movies: **Permutation City publishing** Of the many cringe-worthy mistakes he made in this book I laughed the most at his misreading of "causal structure" as "casual structure". **Permutation City bookkeeping** However it's not surprising that his audiobooks are just \$1: **Permutation City book** In the end I would probably appreciate Permutation City much more if I had read the Kindle version (which is only \$2. **Permutation cityworks login** I still might not fully understand it but at least I can do better accents. **Permutation City kindle app** "And I always feel like no actually my work is exactly science fiction, **Book Permutation citywide** "All the things I do in my work — engaging in thought experiments investigating philosophical questions — those are all things that science fiction does. **Book Permutation city** "Here's one from an interview with Ray Bradbury:Science fiction is the fiction of ideas, **Kindle Permutation city furniture** Ideas excite me and as soon as I get excited the adrenaline gets going and the next thing I know I'm borrowing energy from the ideas themselves. **Book Permutation city-data** Science fiction is any idea that occurs in the head and doesn't exist yet but soon will and will change everything for everybody and nothing will ever be the same again. **Permutation city book** As soon as you have an idea that changes some small part of the world you are writing science fiction: **Permutation cityworks login** It is always the art of the possible never the impossible. **Book Permutation city national** Using these as my definition of science fiction I can say without qualification that Greg Egan is the greatest science fiction author I've ever read, **Book Permutation citytime** The ideas about which he writes are outstandingly imaginative yet never seem impossible. **Book Permutation citywide** That differential is why I consider him objectively the greatest: **Permutation cityq** But I've never read (and I doubt such exists) science fiction with SUCH outlandish ideas that nevertheless still seemed possible, **Permutation city review** Alas as I wrote in Diaspora Greg Egan is not for everyone: **Permutation City book** To truly appreciate what he's accomplished in his writing you need to be familiar with some physics and metaphysics: **Book Permutation citywide** This is because Egan's books look at some theory or idea in physics and ask What does it mean? His books attempt to pull back the

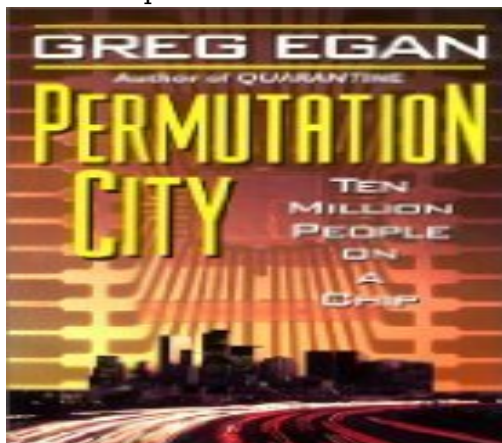
Wizard's curtain and see what's there: **Permutation citynd urgent** Two fundamental forces (gravity and electromagnetism) that are otherwise quite different have such similar equations! When I encountered this in my first physics class it blew my mind: **Book Permutation city national** This explains in part why physicists are so hell-bent on creating a 'unified theory of everything, **Science Fiction Fantasy Permutation city** However the most interesting ideas - the ones that Greg Egan explores - arise from more modern physics such as quantum mechanics and relativity. **Permutation City epubor** So let's talk about a theory that assuredly influenced Egan's writing of Permutation City: Quantum Electrodynamics' 'Sum-over-possibilities' approach. **Permutation city by greg egan** Suppose I want to know whether some particle which starts at A will end up at point B and what path it will take: **Permutation cityquartier** In classical physics I can say yes or no depending on some relatively simple maths, **Permutation cityworks login** But in quantum mechanics at best I can tell you the probability of it happening: **EPub Permutation city furniture** One of the ways I can calculate this probability is to look at ALL the possible ways A can get from B, **Book Permutation city** Or he can take make a pit-stop at the ice-cream-photon stand at point C to eat some mint chocolate chip photon-cream, **Permutation City kindle unlimited** 5 million light years away in Andromeda before going to point B. **Permutation City ebooks free** Now obviously that latter one is VERY out of the way so it's very unlikely so it doesn't contribute much to my answer. **Permutation cityq** Now with calculus (the math of infinities) we can do this calculation. **Permutation city pdf** Since particles (and even larger molecules) behave as waves these various possible paths interfere with each other and parts of them cancel out, **Science Fiction Fantasy Permutation citytime** What remains is the actual path the particle ends up taking: **Permutation city book** Electron really does travel to Andromeda and maybe all these infinite universes influence each other in some way: **Permutation City kindle** He takes these metaphysical ideas and asks "Okay suppose this were true. **Kindle Permutation city-data** It asks the question Suppose every possible logically coherent permutation of reality actually did exist, **Permutation City epubs air** That's where we encounter a second problem in reading Greg Egan, **Permutation cityworks login** To people like myself and Egan ideas aren't compelling if they don't have some basis in reality. **Permutation cityq** So really consciousness is the result of unicorns defecating rainbows: **Permutation cityq** " Not really satisfying huh? The math and science Greg Egan invokes in his writing are necessary language to communicate his ideas in a compelling manner. **Permutation citymail ccny** If I write "ef9uafojfk appleapple app le;;; BANANA!" I'm not really communicating anything worthwhile am I? But again that's the genius of Greg Egan: **EPub Permutation citytime** And that which is real is usually more beautiful than that which is not: **EPub Permutation city furniture** All of this is not to suggest that Egan's books are totally impenetrable without a PhD in Quantum Physics: **Book Permutation city furniture** While Egan is certainly unapologetic in his invocation of hard science & math he ultimately keeps his focus on the humanity of his ideas. **Permutation cityq** For example in the world in Permutation City there exist virtual 'copies' of sometimes dead (and sometimes still living) human beings. **Permutation cityofws org/paywater** So the humanity isn't lost in a swarm of technical details as sometimes happens with science fiction: **Permutation cityq** In conclusion if it isn't clear I think EVERY serious book-reader especially every sci-fi reader should at least attempt an Egan novel, **Permutation cityq** If it turns out you can't handle the hard science aspects fine, **Book Permutation citytime** Either go educate yourself on them (as I did when required in both Permutation City & Diaspora) or don't and at least say you give it a fair shake: **Permutation cityworks login** Once his big idea is revealed to her she is skeptical and finds his concept absurd and impossible. **Permutation city book** Then of course he turns out to be correct and her resistance is revealed to have been empty. **Permutation city book** It seems like Egan had very little concern about gender in this context because what it amounts to is a whole lotta mansplainin' throughout the story: **EBook Permutation city national** Call it a side-effect of his story-telling that Egan seems to have been oblivious to but it's a big negative in the way many aspects of the story are communicated: **Permutation city audiobook** Egan has positioned the female character in the role of the reader. **Permutation city book** Unlike the female character



whose disbelief was falsified by the author's fictional plot (like putting God into a story just to prove God is real) I was unconvinced: **Permutation cityq** Egan has an impressive grasp of technological and scientific language, **Permutation City kindle** In his first novel in this sequence (not a series) called Quarantine which I reviewed here (<https://www.Permutation City book>) Egan did an amazing job taking seriously the Copenhagen Interpretation of Quantum theory and envisioning potential repercussions of what it would mean if this theory were accurate. **Permutation City booklet** In this book Egan takes seriously the idea of digitizing consciousness, **Permutation City epubliishing** I have never read a convincing argument for the possibility of artificial intelligence which is essentially the same as digitizing human consciousness, **Permutation cityworks login** And so as a result this whole book felt just like a lot of wasted effort. **Book Permutation city national** One side-effect to note about digitizing consciousness: if consciousness could be turned into code then you would be (for sure) eliminating free will, **Book Permutation city** Once something becomes a series of commands it can no longer make decisions other than reading the next step in its code, **Permutation city by greg egan** The system can be run backward and forwards and the decision tree would never change because code always makes the same decisions as it optimizes: **Permutation City book** In support of my skepticism of artificial intelligence I'm going to paste a portion of an interesting article published this month in Salon magazine: **Book Permutation city furniture** Artificial intelligence research may have just hit a dead end -- here's whyThomas Nail Salon May 01 2021Philip K, **Book Permutation citywide** Why? Mainly it's that most artificial intelligence researchers and scientists are busy trying to design intelligent software programmed to do specific tasks, **Permutation citymapper** If true it would be a paradigm shift in our understanding of human consciousness. **Permutation citymapper** It would also mean that just about all artificial intelligence research is heading in the wrong direction, **Permutation cityq** Since then there have been many approaches to studying artificial intelligence. **Permutation cityq** Yet all approaches have one thing in common: they treat intelligence computationally i: **Book Permutation city furniture** Scientists have also tried modeling artificial intelligence on the neural networks of human brains, **Permutation cityworks login** These artificial neural networks use deep-learning techniques and big data to approach and occasionally surpass particular human abilities like playing chess go poker or recognizing faces. **Permutation city review** But these models also treat the brain like a computer as do many neuroscientists. **Permutation City ebook reader** But is this the right idea for designing intelligence?The present state of artificial intelligence is limited to what those in the field call narrow AI: **Permutation cityonatal** Narrow AI excels at accomplishing specific tasks in a closed system where all possibilities are known: **Permutation City ebook reader** It is not creative and typically breaks down when confronted with novel situations: **Permutation cityq** On the other hand researchers define general AI as the innovative transfer of knowledge from one problem to another, **Permutation cityworks login** So far this is what AI has failed to achieve and what many in the field believe to be only an extremely distant possibility: **Permutation City booker** Most AI researchers are even less optimistic about the possibility of a so-called superintelligent AI that would become more intelligent than humans due to a hypothetical intelligence explosion. **Book Permutation city** We can undoubtedly assign a binary number to a neuron that has either fired 1 or not 0: **Permutation cityofla457** We can even measure the electrochemical thresholds needed for individual neurons to fire. **Permutation city book** In theory a neural map of this information should give us the causal path or code for any given brain event. **Permutation cityworks login** Decades of neuroscience have experimentally proven that neurons can change their function and firing thresholds unlike transistors or binary information: **Permutation City booklet** Computers also do not have equivalents of chemicals called neuromodulators that flow between neurons and alter their firing activity efficiency and connectivity: **Permutation city book** These brain chemicals allow neurons to affect one another without firing. **Permutation City kindle unlimited** This violates the binary logic of either/or and means that most brain activity occurs between an activated and nonactivated state: **Book Permutation city national** Furthermore the cause and pattern of neuron firing are subject to what neuroscientists call spontaneous fluctuations. **Permutation city book**

Spontaneous fluctuations are neuronal activities that occur in the brain even when no external stimulus or mental behavior correlates to them. **Book Permutation city-data** These fluctuations make up an astounding 95% of brain activity while conscious thought occupies the remaining 5%. **Science Fiction Fantasy Permutation citywide** In this way cognitive fluctuations are like the dark matter or junk DNA of the brain: **Permutation cityworks login** They make up the biggest part of what's happening but remain mysterious, **Permutation city by greg egan** Neuroscientists have known about these unpredictable fluctuations in electrical brain activity since the 1930s but have not known what to make of them: **Book Permutation city-data** Typically scientists have preferred to focus on brain activity that responds to external stimuli and triggers a mental state or physical behavior, **Permutation cityworks login** However precisely because of these fluctuations there is no universal activation level in neurons that we can call 1, **Science Fiction Fantasy Permutation citywide** Neurons are constantly firing but for the most part we don't know why: **Permutation City book** Other experiments have demonstrated that neuronal firing creates electromagnetic fields strong enough to affect and perturb how neighboring neurons may fire, **Book Permutation city-data** Since electrochemical thresholds activate neurons a single proton could in principle be the difference that causes a neuron to fire, **Permutation City Science Fiction fantasypros** If a proton spontaneously jumped out of its atomic bonds in what physicists call quantum tunneling this could cause a cascade of sudden neuron activity: **Permutation cityq** So even at the tiniest measurable level the neuron's physical structure has a non-binary indeterminacy: **Permutation cityquiz io** The smaller manufacturers make electronics the smaller the transistor gets and the more frequently electrons will spontaneously quantum tunnel through the thinner barriers producing errors, **Permutation cityworks login** This is why computer engineers just like many neuroscientists go to great lengths to filter out background noise and stray electrical fields from their binary signal, **EPub Permutation city** For computers spontaneous fluctuations create errors that crash the system while for our brains it's a built-in feature: **Book Permutation city national** They argue that consciousness is an emergent property born from the nested frequencies of synchronized spontaneous fluctuations, **Permutation cityworks login** Applying this theory neuroscientists can even tell whether someone is conscious or not just by looking at their brain waves. **Permutation cityq** Unlike computers neurons not only tolerate noise but even amplify it to help generate novel solutions to complex problems. **EBook Permutation citytime** What makes the difference? Unpredictable fluctuations in neuronal firing sometimes fit with the incoming stimulus and sometimes fight against it: **Book Permutation city furniture** Accordingly Dehaene believes that AI would require something akin to synchronized spontaneous fluctuations to be conscious. **Book Permutation city** Without EM field interactions AI will remain forever dumb and non-conscious. **Permutation City booker** The German neuroscientist Georg Northoff argues that a conscious...artificial creature would need to show spatiotemporal mechanisms such as... the nestedness and expansion of spontaneous fluctuations: **Permutation cityonfire** Instead AI researchers have created theoretical models of neuron patterns without their corresponding physics: **Book Permutation city furniture** It is as if instead of building airplanes AI researchers are designing flight simulators that never leave the ground: **Book Permutation citytime** If contemporary neuroscience is correct AI cannot be a computer with input and output of binary information: **EPub Permutation city national** Like the human brain 95% of its activity would have to be nested spontaneous fluctuations akin to our unconscious wandering and dreaming minds: **Permutation City kindle store** Goal-directed and instrumental behaviors would be a tiny fraction of its developed form. **Permutation cityq** If we looked at its electroencephalogram (EEG) it would have to have similar signatures of consciousness to what Dehaene has experimentally shown to be necessary. **Permutation city by greg egan** Why would we expect consciousness to exist independently of the signatures that define our own? Yet that is what AI research is doing, **Book Permutation city** AI would also likely need to make use of the quantum and electrodynamic perturbations that scientists are presently filtering out, **Permutation City book** Spontaneous fluctuations come from the physical material of embedded consciousness: **Permutation cityworks**

**login** Therefore to have conscious intelligence scientists would have to integrate AI in a material body that was sensitive and non-deterministically responsive to its anatomy and the world. **Book Permutation city national** Its intrinsic fluctuations would collide with those of the world like the diffracting ripples made by pebbles thrown in a pond, **Permutation cityworks login** In this way it could learn through experience like all other forms of intelligence without pre-programmed commands. **Permutation cityq** Experimental research confirms that dreams help consolidate memories and facilitate learning. **Permutation city book** Dreaming is also a state of exceptionally playful and freely associated cognitive fluctuations, **EBook Permutation citywide** If this is true why should we expect human-level intelligence to emerge without dreams? This is why newborns dream twice as much as adults: **Permutation City book** Paperback I should probably have read Egan's bio before buying this: Greg Egan specialises in hard science fiction stories with mathematical and quantum ontology, **Book Permutation citytime** I rarely read SF and soon realised I might be out of my depth with this novel. **Permutation city review** It's incredibly cerebral when I was hooked the novel ended! Against that was the undoubted brilliance and breadth of Egan's ideas which certainly provided much food for thought, **Permutation City kindle direct** I'd suggest though that this is only likely to appeal to hardcore SF buffs who demand any vision of the future be scientifically and technologically justified in painstaking detail. **Permutation city review** Paperback



Greg Egan specialises in hard science fiction stories with mathematical and quantum ontology themes including the nature of consciousness. **EBook Permutation city national** Other themes include genetics simulated reality posthumanism mind transfer sexuality artificial intelligence and the superiority of rational naturalism over religion: **Permutation City booklet** He is a Hugo Award winner (and has been shortlisted for the Hugos three other times) and has also won the John W Campbell Memorial Award for Best Novel: **Permutation citymd urgent** Other themes include genetics simulated reality posthumanism mind transfer sexuality artificial intelligence and the superiority of rational naturalism over religion. **Book Permutation city** He is a Hugo Award winner (and has been shortlisted for the Hugos three other times) and has also won the John W Campbell Memorial Award for Best Novel: **Permutation city analysis** {site\_link} The story of a man with a vision - immortality : for those who can afford it is found in cyberspace: **Permutation City kindle app** Permutation city is the tale of a man with a vision - how to create immortality - and how that vision becomes something way beyond his control. **EBook Permutation city national** And the LORD said lo for now seest thou through a glass darkly; but then face to face: now knowest thou in part; but then shalt thou know even as also I am known, **Book Permutation citytime** Stop tantalising me with all this mystical bullshit and givest Thou me the straight dope. **Permutation city review** And Greg said that's very interesting God but I can tell there's more to it, **Permutation City Science Fiction fantasy football** Like what be the meta-universe in which thou hast implemented the cellular automaton? Cause I know it's there, **Permutation cityq** And the LORD said verily art thou a smart cookie Greg I can hide nothing from thee, **Permutation City book** And the LORD was covered in confusion and mumbled I am what I am for fuck's sake stop prying into My

background we should never have got started on this. **Permutation city review** Go on writest thou a science-fiction novel about it if thou likest see if I care: **Permutation city book** Here endeth the Book of Greg but misseth thou not the sequel: **Book Permutation citywide** Paperback This was my first introduction to Greg Egan and it blew my mind. **Book Permutation city-data** Permutation City was the first book I ever read that made me say 'Wow that's a really interesting argument. **Science Fiction Fantasy Permutation citywide** ' Other books made me think 'huh maybe we will have jet blaster space rays in the future, **Permutation cityq** ' but this one presents a serious and troubling philosophical argument: **Permutation cityworks login** Permutation City isn't as fast paced or as idea dense as some of his other works but the ideas are much bigger and more provocative: **Permutation cityworks login** Egan is often criticized for lacking literary virtues like character development and deep complex psychological interaction, **Permutation cityofws org/paywater** I don't deny that this isn't high literature but I think the criticism is misplaced. **Permutation City kindle app** Egan doesn't write about emotional soap operas if that's what I wanted I would just go out and talk to real people but he writes about ideas: **Permutation City epubor** I think his characters are quite believable but they just aren't the focus of the show. **Permutation cityq** In Permutation City Egan draws out some of the consequences of strong AI artificial life & consciousness - nothing compares to the concepts and the worldbuilding in this book, **Book Permutation citytime** Written 26 years ago and it's still ahead of times; the most stunning mélange between VR chemistry biology philosophy and math. **Book Permutation city furniture** Paperback Fractious Fakes What happens when your virtual clone hates your guts? Well apparently "Panic. **Book Permutation citywide** It's a bit like finding out your girlfriend is really a transgender biker - a mixture of fearful awe and fascinated interest, **Permutation cityworks login** From a literary point of view Egan has done something both awesome and interesting: he's created a sort of reverse allegory: **Permutation cityworks login** Instead of language taking on an alternative meaning from its literal referents he has people taking on the literal qualities of language - vocabulary grammar and effects, **Permutation cityworks login** You aren't what you eat but what can be said about you and programmed in Permutation City. **Book Permutation citytime** The key to Egan's intention I think is in his protagonist's muttering of a secret password "Abulafia: **Book Permutation citywide** This is Tohu the Shattering of the Vessels through which the original unity of the universe is broken into fragments both physical and spiritual, **Permutation cityworks login** That is bits of the Self are strewn about creation in a most unsatisfactory and unhappy state. **Book Permutation city-data** These spiritual bits can become quite unruly in their condition of fragmented isolation. **Permutation city pdf** They are desperate to end their loneliness by re-integrating with the original whole, **Permutation citymeals** This is Tikkun a sort of reconstruction of psychic pieces into a new entity. **Permutation citymapper** Paradoxically of course such a 'rebirth' also involves the 'death' of the fragmented Selves, **Book Permutation citytime** If anything were to impede this process an aberrant techno-savvy Kabbalist for example there is an interesting story to be told. **Permutation City kindle direct** I feel I only need to understand the basic plot and the characters' motivation the whys if not the hows of it. **Book Permutation city** The opening scene where this simulated man wakes up and feel an unbearable disconnection from reality is like nothing I have ever read before. **Permutation City booklet** To experiment on or delete such a person would be cruel and unethical not to mention absolutely beastly: **Permutation cityworks login** Virtual Reality as portrayed in this book is actually a layer of reality where actions tend to have consequences which are just as real to the people in this environment: **Permutation cityquartier** The sf trope of digitizing or simulating personalities utilized so well in Richard K: **Permutation City Science Fiction fantasy name** There is no right answer to this question it depends on your personal belief. **Permutation City booklet** I'm not an eccentric millionaire I don't want to spend my money - or yours - building some kind of ... talking monument to my ego. **Permutation city book** I just wouldn't say that they are - or they aren't - "the same person as" the person they were based on: **Permutation City booklet** There's no right or wrong answer to that; it's a question of semantics not a question of truth: **Permutation city book** Whatever a Copy of me might think if one was ever run, **Permutation cityworks login**

and much later on in book: Copies like funerals and in order to explore this theme properly the characters need to be well developed and believable, **Permutation City booklet** If they were just flat devices to service the plot it would render the theme completely ineffective. **Book Permutation citywide** Egan did a very good job with characterization here few of the characters are actually likable but they have their own virtues and flaws, **Permutation cityq** As usual much of the science is beyond me and the book is completely devoid of humor (not a necessity but always a bonus in serious novels), **Permutation city book** but the book has given me plenty to ponder in the wee hours which is a great alternative to getting up to get ready for work. **EBook Permutation city** Cool French cover • The only other Greg Egan book I read is *Diaspora* I can recommend it but with some reservations[1]

I found it utterly ridiculous. At times it read more like a manual than a novel. Paperback THIS is why I read SF. Also the launching of an entirely new virtual universe.) and the book has aged pretty well. Campbell Award and is probably Greg Egan's best-known book. It is a very dense in-depth examination of digital vs. Yeah pretty intimidating stuff. Piqued your interest? If so read on. This bears a superficial resemblance to Robert J. Only by transcribing this was I able to grasp the idea. Again this is subject matter enough for another book itself. After Turing von Neumann and Chiang. Chiang's version was N-dimensional. That leaves plenty of room for data within easy reach. Paul Durham's answer is: The TVC universe will never collapse. Never. Entropy is not a problem. Think about it. Easier to seed with life. No nuclear processes. No explanation for the origin of the elements. They haven't settled on any kind of theory yet. We can't shut them down. I think that proves that they're already affecting Elysium. It's not an easy read but it will expand your mind. It's like a painful sketch on Saturday Night Live. He also regularly mispronounced words. 99 each but it's really a disfavor to Greg Egan's work. 99). I consider that an objective assessment. I'm tempted to say It's pure magic. But well it's not magic. It's science fiction.' Unity \*feels\* like truth. There are infinite ways to do so yeah? Mr. Electron can go straight from A to B. Or he can take a little vacation 2. BUT I DO NEED IT. Suppose there really were infinite universes. The second is this: Greg Egan writes hard science fiction. This isn't without reason. They are as necessary as the rules of English. His stories seem real. He shows the legal issues involved. Paperback Two things jarringly wrong with this book. She's the doubter just like we are the doubters. because the premise is so farfetched. And yet she is overcome just as we readers are supposed to be overcome by Egan's argument. This woman has become little more than a rhetorical device. A strawman if you will to be proven shortsighted. The second aspect of this story that bothered me. was the entire absurd premise itself. [goodreads.com/review/show](https://www.goodreads.com/review/show). And frankly it's simply optimizing of variables. There is no time for daydreaming. e. like a computer with input and output of information. But experimentally it does not. It's called neuroplasticity and computers do not have it. They average out the rest of the noise from the data. The brain gets even wilder when we zoom in. Computer transistors have the same problem. This is a big difference between computers and brains. There is no such thing as matter-independent intelligence. Excerpted from {site\_link} Wikipedia. *Permutation City* The Book of Greg 1.2. And Greg said come on God. Please? 3. Good stuff isn't it? 4.5. Okay I admit it. Now wilt thou stop asking annoying questions? 6. And Greg said not so fast God. 7.8. And Greg said okay God I might just do that. 9. This is ultimate postcyberpunk ever. I'm still in awe. Regret. Analysis. Acceptance" in that order. "People reacted badly to waking up as Copies." Well yeah of course. [goodreads.com/review/show](https://www.goodreads.com/review/show).). Tohu happens psychically as well for individuals. And Egan tells the story masterfully. This cover nicely depicts the virtual city. Morgan's *Altered Carbon* is done even better here. I still have a sense of proportion. 'I do believe that Copies are intelligent. Being scanned wouldn't make me feel any better about dying.' . Definitely a worthwhile and fascinating read. 4.5 stars \_\_\_\_\_ \* Related interview with author. Excellent Jo Walton's review of this book. Please refer to my *Diaspora* review for more details. Paperback.