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Chapter 1 : Prospect of return to manned flight revitalizes the Space Coast of Florida | WRAL TechWire

general position in space, meaning that no four share a point, no three intersect in more than a point, no two in more than a segment, no two edges of different triangles intersect, no triangle vertex lies in another triangle, and no triangle edge.

Space X public domain All photos not otherwise credited are by Renee Wright. Copyright Capital Broadcasting Co. The beach villages of Cocoa, Melbourne and Titusville grew along with the space industry centered on Cape Canaveral. But budget cuts, and the end of the Shuttle program in , put space flight on the back burner and sent engineers and technicians looking for jobs elsewhere. After a decade or so in mothballs, however, the Space Coast is roaring back. Opening the space industry to private firms allowed young billionaires â€" Elon Musk and Jeff Bezos among them â€" to pursue their boyhood dreams of exploring space. Once deserted parking lots now overflow and you just may have to dodge a rocket stage being trucked in to the Assembly Building on your way out of the Kennedy Space Center Visitor Complex. We dodged this rocket stage moving down the road as we left the Kennedy Visitor Complex. The prospect of manned flights resuming from the Cape has changed the mood of the region from respectful awe of the past to one of excited anticipation of the future. The lift-off of the Falcon Heavy is the most spectacular since the Saturn V. Moon Express , founded by Silicon Valley entrepreneurs, is pursuing plans to deliver commercial payloads to the moon at Launch Complexes 17 and Test flights have already begun. The Orion escape rocket will ensure future astronauts are safe in the early stages of flight. The Best Seats For A Launch It all adds up to quite a bit of launch action at the Cape and watching a rocket blast off is always a thrilling sight. Although notoriously subject to delays and scrubs, a launch is something that most Americans, and plenty of foreign tourists, want to witness. Locals will tell you that the rumbling in your chest as rockets lift-off is like no other sensation. The Saturn V viewing area provides one of the best spots to watch a launch. The LC Observation Gantry at the historic Launch Complex 39 where the Apollo moon missions blasted off is the closest of all, and commands the highest price ticket for viewing a launch. You can sign up for launch alerts on the Kennedy Space Center website or download the new Launch Console phone app, available free for Apple and Android systems. Developed by the Space Coast Office of Tourism , the app includes a launch schedule, mission details, information on each rocket type, a compass to locate where each launch will occur, live video streaming, even suggestions on the best places to watch. Kennedy Space Center is far from the only spot for watching rocket launches. In fact, the spectacular burn of nearly every rocket can be seen throughout the Brevard County region, and beachfront parks up and down the coast fill up as a countdown nears. The Apollo monument at Space View Park. Port Canaveral, once a quiet fishing dock, now probably the most laid-back spot to board a cruise ship in the country, is another hot spot for rocket watching. For the best view, pay the admission to the observation deck atop the Exploration Tower , seven stories up with an unimpeded view of the launch pads. Lower floors house interactive exhibits on nature and science. Astronaut Hall of Fame. The enormous Atlantis exhibit, built around the last space shuttle to fly, gives a close up view of the space plane â€" and would have to be torn down to get it out. Space, shares the building with Atlantis. A statue of Alan Shepard, first American in space, greets visitors at the U. The most memorable portion of a trip to the Kennedy Center is the bus tour out to the Saturn V building dedicated to the Apollo moon missions. The building houses an enormous Saturn V rocket, the largest rocket ever fired, stretched out on its side. Another exhibit honors the memory of the astronauts lost in the Apollo I fire, while the vault-like Apollo Treasures exhibit displays actual capsules, spacesuits and tools, most on loan from the Smithsonian. A helmet worn in space. The bus tour out to the Saturn V building holds some eye-opening moments as well, including a drive-by of the Vehicle Assembly Building VAB , where the Saturn and Shuttle spacecraft were assembled, and the crawler that carried them on a specially built road to the pad. The VAB is currently once again in use, assembling a new generation of rockets, so no tours go inside. Other sights along the bus tour are of a more timeless nature.

Alligator sightings in the roadside canals are nearly guaranteed. Florida alligators are frequently seen during the bus ride to the Saturn V building. The Sands Space History Museum , a free museum near the entrance of the Cape Canaveral Air Force Station, details the history of each launch pad at the Cape and the early years of the space program. Space View Park honors many people involved in the U. The website of the Space Coast Office of Tourism, www.

Chapter 2 : Building Bridges: A Symposium on Global Cultural Heritage Preservation| Smithsonian Institutio

*Triangles in space or building (and analyzing) castles in the air [Boris Aronov, Micha Sharir] on theinnatdunvilla.com *FREE* shipping on qualifying offers. This is a reproduction of a book published before*

Health and lung problems Foreign body in eye Cause of accident in construction? Erection equipment failure 2. Falling of persons from height 3. Non stop working by worker 6. Up safe work methods 7. Collapsing of earth during trench excavation 8. Failure of use safety equipment 9. Working a height without safety belt 51 General safety precautions in construction? Adequate first aid equipment should be kept ready 2. Adequate fire fighting equipment should be available 3. All general electrical rules should be followed 4. Work men at height should be wear safety belts 6. Work men handling cement should be provided with goggles, rubber gloves and rubber boots by nose mask. The moving parts of grinding machines used construction site should be covered with guards 8. The moving parts of grinding machines used construction site should be covered with guards 9. Excavated material should not kept near the excavated Very short duration of work red flags must be hoisted and more duration red banners must be stretched Defective tools should not be used The worker should not carry tools in his hands when climbing a ladder Excavation should be guarded by suitable fencing How to erect scaffolding? It should be erected on levels firm ground 2. It is constructed using metal pipes and wooden boards 4. It should be design and constructed from good and sound material 5. Not to be erected on loose earth 6. Clamps should fixed 8. Sole plate is necessary the base of vertical pipe Safety precaution of scaffold? Wooden board not be painted 2. Wooden board should not to any cracks 3. Clamps should fixed and good quality 5. Boards thickness should be 3. The construction must be rigid, properly based 7. Use of good and sound materials 8. The wooden bellies has not joints 9. Vertical poles should not be more than 6 feet Chains, ropes used for the suspension of scaffoldings Never throw any materials from height Use safety harness while working at above 6 feet Properly ties to be arrangement 54 What control measures area necessary in confined space? Enter with air line BA sets 2. Use 24v flame proof hand lamps 3. A hole watch to be kept near man hole 4. Keep fire fighting equipment ready 5. Gas test to be done to check for oxygen level 6. Use ropes and harness 9. The spaces clean before entry Use non sparking tools it there is any risk of flammable vapors being present. Safety rules when using ladders? The foot wear is not greasy, oily and muddy and has a good grip on the rungs. When climbing or coming down a ladder should be face the ladder side and had on with both hand. Carry light tools in pockets in a shoulder bag. Hold on with at least new hand if use of both hands then, use safety belt 5. Never climb higher than the third rung from the top on straight or second tired from the top on extension ladder. Step ladder must be fully open and the divider locked 7. Metal ladder shall not be used near electrical equipments. Metal ladder shall not be place on firm footing and at angle of 75 9. Any ladder found defect in any way should be marked do not use Ladder shall not be placed on a box or drum. Rubber protection on head and heel of a ladder is necessary. Safety rules insuring oxygen cylinders? Oxygen cylinders should not be kept near combustible materials. Oxygen cylinders should not be handled with grassy hands or gloves. Oxygen cylinders and their fittings should not be tested with oil based soap solution. Oxygen cylinders and other combustible gas cylinders should not be stored together. The top cover of the cylinder should be kept in position and screwed safety when not in use. Cylinders should not be used as rollers for moving materials 7. Oxygen must not be use for ventilating confined spaces. Safety rules in using compressed air? Only authorized persons should used compressed air. The body or clothes should not be cleaned with compressed air. Compressed air hose pipes should not be placed across passage ways 4. Leakage of compressed air should not be tested with hands. While working with tools run by compressed air safety shoes are to be used. The tools should not be kept on position when not in use. Handling of compressed gas cylinders? They are not to be dragged or dropped 2. They should be stored in dry and well ventilated places 3. Chins and slings should not be used for lifting cylinders. Cylinders should not be stored near hot sources 6. Acetylene cylinders should not be stored horizontally 7. Empty cylinders and fully cylinders should be stored

separately 8. Leakage cylinders removed to open space and release the gas without getting ignited. Storage of gas cylinders. Cylinders should stored in a safe, dry and well ventilated store 2. Oxygen cylinders should be stored horizontally and acetylene cylinders shall be stored vertically. The standing cylinders should be secured properly avoid falling. Flammable gas shall be stored at least 50 feet away from another building 5. Oxygen cylinder shall never be stored necessary flammable gas cylinder 6. Empty cylinder shall be identified by marking with a chalk MT and checked for damage before returning to suppliers. Cylinders should not be kept as supports. Give a brief note about crane and LE? Only authorized and competent person should operated cranes 2. The correct sling must be used for the load to be lifts 3. Lifting equipment must be certified from competent authority and mark with its SWL 4. Never be used for loads excess of its SWL 5. Cables and slings must be padded when passing over sharp edges of equipments 6.

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Chapter 3 : CiteSeerX â€" Citation Query M.: Triangles in space or building (and analyzing) castles in the a

We give a simple algorithmic technique for building geometric structures. The technique is randomized and incremental. As an application, we give an algorithm of this kind for computing the intersection of a set of halfspaces in three dimensions.

Sharir, Output-sensitive In Proc, F. Preparata , " Efficient point location in a convex spatial cell-complex. Almost tight upper bounds for lower envelopes in higher dimensions. FOCS 93 , pages , Data Structures and Network Algorithms. Planar realizations of nonlinear Davenport-Schinzel sequences by segments. A randomized algorithm for closest-point queries. Applications of random sampling in computational geometry, II. Exact Minkowksi sums of polyhedra and exact and efficient decomposition of polyhedra into convex pieces by Peter Hachenberger " We present the first exact and robust implementation of the 3D Minkowski sum of two non-convex polyhedra. Our implementation decomposes the two polyhedra into convex pieces, performs pairwise Minkowski sums on the convex pieces, and constructs their union. We achieve exactness and the handling of al We achieve exactness and the handling of all degeneracies by building upon 3D Nef polyhedra as provided by Cgal. The implementation also sup-ports open and closed polyhedra. This allows the handling of degenerate scenarios like the tight passage problem in robot motion planning. The bottleneck of our approach is the union step. We address efficiency by optimizing this step by two means: The decomposition that we implemented as part of the Minkowski sum is interesting in its own right. It is the first robust implementation of a decomposition of polyhedra into convex pieces that yields at most O r2 pieces, where r is the number of edges whose adjacent facets comprise an angle of more than degrees with respect to the interior of the polyhedron. Show Context Citation Context A wall W e of some non-vertical edge e is a connected subset of the vertical plane pe that supports e. Because their definition was given for a decomposition of the three-dimensional space with respect to a set of triangles we adapt their definition to our problem as follows: Let A pe be the planar We present new results concerning the refinement of three-dimensional arrangements by vertical decompositions. This improves significantly over the best previously known algorithms. Next, we propose an alternative sparser refinement, which we call the partial vertical decomposition and has the advantages that it produces fewer cells and requires lower degree constructors. We adapt the output-sensitive algorithm to efficiently compute the partial decomposition as well. We implemented algorithms that construct the full and the partial decompositions and we compare the two types theoretically and experimentally. The improved output-sensitive construction extends to the case of arrangements of n well-behaved surfaces with the same asymptotic running time. We also extended the implementation to the case of polyhedral surfaces -- this can serve as the basis for robust implementation of approximations of arrangements of general surfaces. We are not aware of experimental results on vertical decompositions of three- or higher dimensional arrangements. Geom , " We show some combinatorial and algorithmic results concerning sets of lines and polyhedral objects in 3-space. Our main results include: This bound is almost tight. Most combinatorial results for polyhedral sets in 3-space describe bounds on sets of points or planes via duality in 3-space [14, 33]. This is equivalent to determining the worst case complexity of one isotopy class of points induc Research supported by C. Istituto di Matematica Computazionale del C. Maria 46, Pisa, Italy. Sharir , " This improves a previous upper bound of Edelsbrunner et al. Discrete geometry, extremal problems, arrangements of line segments, trapezoidation, combination lemma, combinatorial complexity, probabilistic counting. Work by the fourth author has additionally been supported by grants from the U.

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Chapter 4 : CiteSeerX â€" Citation Query Triangles in space, or: Building (and analyzing

Abstract. We show that the total combinatorial complexity of all non-convex cells in an arrangement ofn (possibly intersecting) triangles in 3-space isO(n 7/3 logn) and that this bound is almost tight in the worst case.

Rectangular towers[edit] Square or rectangular towers are easy to construct and give a good amount of usable internal space. Their disadvantage is that the corners are vulnerable to mining. Despite this vulnerability, rectangular towers continued to be used, and Muslim military architecture generally favoured them. Round towers, also called drum towers, [2] are more resistant to siege technology such as sappers and projectiles than square towers. The round front is more resistant than the straight side of a square tower, just as a load-bearing arch. This principle was already understood in antiquity. The semicircular side the one facing the attacker could resist siege engines, while the rectangular part at the back gives internal space and a large fighting platform on top. Armenian castles such as Lampron also favoured this style. Polygonal towers[edit] A common form is the octagonal tower, used in some bergfrieds and at Castel del Monte in Italy. There are also hybrid shapes. Towers with specific functions[edit] Wall towers, also known as mural towers, provide flanking fire from crossbows or other projectile weapons to a straight part of the curtain wall. Corner towers enfilade the two adjoining wall faces. If corner towers are far apart, additional flanking towers may be added between them. Towers in an outer curtain wall are often open at the back. Particularly large towers are often the strongest point of the castle: As the gate is always a vulnerable point of a castle, towers may be built near it to strengthen the defences at this point. In crusader castles, there is often a gate tower , with the gate passage leading through the base of the tower itself. In European castles, it is more common to have flanking towers on either side of the gatehouse. A rectangular and a round tower projecting from the wall at Krak des Chevaliers. Octagonal corner towers at Castel del Monte, Apulia. Wall towers and square gate tower at the Citadel of Aleppo.

Chapter 5 : Cricut Design Space

Triangles in space or building (and analyzing) castles in the air Triangles in space or building (and analyzing) castles in the air. by Aronov, Boris; Sharir, Micha.

Our neighbor brought up his backhoe to carve a building site out of the hill. We spliced scraps of lumber together to build forms for the foundation. We built the footing formwork on the patio. The inner and outer forms were moved into place, then secured with diagonal bracing. The castle is sized to fit the satellite dish that will be used as a form to pour the roof. Stubby retaining walls will keep the backfill away from the door. The rebar was suspended off the bottom before the concrete pour. The footing was small enough to allow us to mix and pour the whole thing ourselves. We removed the wooden slats used to support the rebar so that we could screed the top. I decided to place the first layer of cinderblocks while the concrete footing was still fresh. We hid junk blocks with random colors and textures on the back side of the castle, to be buried below ground level. Blocks with more natural colors were blended together in the exposed walls. Starting the window openings. The castle took shape in only a few days I disposed of old latex and acrylic paints as concrete additives to pour the cinderblock cores. We added rebar and concrete to every core to insure that the castle will be around for a long, long time. Empty paint cans, ready for recycling. Blocks over the windows and doors are notched to allow placement of horizontal rebar and concrete. The satellite dish was barely big enough to reach the four walls. We added a layer of four-inch wide blocks to accomodate an eight-inch sandwich of concrete, insulation, and concrete around the satellite dish. We used scrap wood for formwork to pour concrete in the four corners. Blocks of insulation in the mortar will later be cut out to leave passage for the chimney up through one of the turrets. Insulating the corner, on top of the first layer of concrete. Pouring concrete over the insulation brought the roof up level with the cinderblocks. We painted foundation coating over any part of the castle that was clearly underground, then backfilled the site. The ridges on the satelite dish required cutting and fitting a lot of little pieces of insulation. We offset the turrets by an inch to get more of that castle-look. We added teeth or "merlons" to the four corners of the turrets. We filled the blocks in the turrets with rebar and concrete. The cavity in the middle was filled with scraps of insulation before being capped with concrete. Blocks were added to the wall between the turrets as additional merlons. We cemented over the dome and sculpted the roof to direct water around the blocks and off the roof. The outside is largely done. Time to work on the inside! We filled the floor up level with the footings with dirt, mixed in a little cement and water and tamped it down with a cinderblock to make an earthen slab. We blocked out a section in the middle for the chessboard, and then poured terra tiles around it. The chessboard complete, now we need bigger chess pieces! We framed in the rough openings around the windows and door with plastic lumber scavenged from a dumpster. Then we installed a secondhand door and new vinyl windows. Elpel, Author of Living Homes It all started with the satellite dish. It was one of those big, old-style, clunky dishes from the early hey-day of satellite television. It was handed off to me when its owners upgraded to a new dish. They somehow imagined they were doing me a favor, that my life would be better if I installed the ugly thing in the yard and had access to five hundred channels of nothing. But we have three channels via the antenna, and that is more than enough of nothing already. And I thought maybe I could make something interesting out of it someday, such as a solar cooker or maybe even the roof of a playhouse or something. So the satellite dish just sat behind the house for fifteen to twenty years. Then we had this idea to turn it into a castle. Instead, I considered finishing a pond that I started many years ago. But my eleven-year-old, Edwin, had been practically begging me for a year to build some kind of playhouse or fort. Given that my older kids were already out of the nest, or headed that way, it was realistically now or never. A satellite dish is bigger than it looks. My initial thought was to build some kind of little round building with a domed roof. We could wrap wire mesh over the satellite dish and trowel mortar over it to make a permanent dome. I also had a big pile of cinderblocks culled from the reject pile at the local cinderblock plant, so it seemed logical to use those for the

walls. Then I had this idea to add teeth around the top, like the "merlons" on a castle, so we started calling it a castle. But my initial tests suggested I would get at least three-inch wide joints between the cinderblocks on the outside of the round walls. However, my brother suggested building a square castle with a round dome roof, and soon the castle project took on a life of its own! I added turrets to the drawings, and Edwin suggested off-setting them a little bit from the walls for emphasis. The kid will obviously be grown up in just a few years, but the castle could double as a small guest house as needed. I decided to insulate it and add a wood stove, with a chimney rising up through one of the turrets. The other design challenge was figuring out where to put the castle. There is plenty of space on the five-acre property, but it is all on the side of a hill, and there are really only two semi-flat areas for building. Building it near the house, shop, and chicken coop would add clutter to the existing compound. Building it on the other flat site could conflict with anything we might want to build there later. Finally, I decided to carve a small building pad into the hill beside the gully up above the pond and next to the road. In retrospect, it worked out better than anticipated. Looking down from the miniature castle, the gully seems more like a miniature valley, and the unfinished pond seems more like a miniature lake. Being at the castle, it feels as if we are looking down upon the kingdom below. Building the Foundation As Henry David Thoreau once wrote, "If you have built castles in the air, your work need not be lost; that is where they should be. Now put the foundations under them. We committed to transforming our castle from dream to reality when I hired my neighbor to come up with his backhoe and excavate a site for the structure. There was no turning back once we had this hole in the side of the hill! However, this was definitely not a high-budget project. For environmental and economic reasons, we would use as many recycled materials as possible in the construction, starting with the lumber used to build formwork for the footings. Unfortunately, my scrap wood pile - all of it hauled home from the dump at some point - was disappointingly lean. Nevertheless, the castle was small enough that we were able to improvise some suitable footing formwork with what we had. We built the forms on the patio, then hauled them into place, squared them up, and secured them together with diagonal cross-bracing. Then we leveled the two sets of forms and drove stakes in around the inside and outside to hold everything steady. Being built into the hill, the footing would naturally be backfilled below grade most of the way around the castle when we finished the project. In order to bury the front as well, I added formwork for a stubby wall on each side of the door. That way we could push earth up around the front without it spilling over in front of the door. The formwork was added to the larger square before we cut out the 2 x 6s to connect everything as a single footing. With the formwork built, we added two runs of half-inch rebar throughout the footings, suspended by tie wire hanging from wooden slats. The project was small enough that we were able to mix and pour all the concrete ourselves. Logan helped pour the footing before heading off to a summer cooking job in Washington D. Kris, Grant, and I tackled the bulk of the castle construction. We shoveled the sand and gravel into the back of the truck and hauled it to the mixer, parked right by the castle. We mixed and poured the concrete, removing the wooden slats as we went. We also removed the diagonal cross bracing while the concrete was still fresh, so that we could screed the entire footing nice and smooth. Up the Walls Unconventionally, I decided to place the cinderblocks at the outside edge of the footing, instead of the middle. That way, there would be no shelf outside the wall to collect moisture, which might migrate through the wall. I also decided to place the first layer of cinderblocks while the concrete was still fresh. The dimensions of the building were determined first by the diameter of the satellite dish, and secondly by the size of the cinderblocks. The dish needed to rest at least partially on all four walls, and we wanted to use full sixteen-inch cinderblocks all the way around, without having to make a lot of custom cuts. Thus, the footings were built exactly the right size to fit eight and a half cinderblocks plus mortar joints on each side. The "half" block is actually a full block that merely starts the next side, so there are technically only eight blocks per side. We placed the first layer of blocks all the way around, then gently hammered short lengths of reinforcing bar down into the footing in each cavity of every cinderblock. Most cinderblocks are really ugly, but these split-face blocks actually resemble split-faced stones, giving the structure a legitimate, castle-like look. The blocks were rejected by the factory for a variety of reasons.

Chapter 6 : 35 Photography Composition Rules and Tips | Compositional Basics, Examples

We also prove combinatorial bounds on the complexity of what we call the (6k)-cell in arrangements of segments in the plane or triangles in space; this is the set of all points on the segments (triangles) that can reach the origin with a path that crosses at most k, 1 segments (triangles).

Their researchers conclude that most, if not all, "black triangle" UFOs are formations of electrical plasma, the interaction of which creates mysterious energy fields that both refract light and produce vivid hallucinations in witnesses that are in close proximity. Further it suggests that "the majority, if not all, of the hitherto unexplained reports may well be due to atmospheric gaseous electrically charged buoyant plasmas" [8] which emit charged fields with the capability of inducing vivid hallucinations and psychological effects in witnesses and are "capable of being transported at enormous speeds under the influence and balance of electrical charges in the atmosphere. These plasma formations are also theorized to have the effect of refracting light between themselves, producing the appearance of a black polygonal shape with the lights at the corners caused by self-generated plasma coloration similar to the Aurora Borealis. Local fields of this type have been medically proven to cause responses in the temporal lobes of the human brain. These result in the observer sustaining his or her own vivid, but mainly incorrect, description of what is experienced. According to the Ministry of Defence researchers, Russian scientists have connected their UAP work with plasmas and the wider potential use of plasmas and may have done "considerably more work than is evident from open sources " on military applications, for example using UAP -type radiated fields to affect humans, and the possibility of producing and launching plasmas as decoys. Analysis of the sightings by Nick Pope concluded that the object moved in a north-easterly course from Cornwall to Shropshire over a period of approximately 6 hours. The sightings report clearly visible objects over densely populated areas and highways, mostly in the United States and Britain, but other parts of the world as well. A geographic distribution of U. The events of 29 November were documented by over thirty different groups of witnesses, and three separate groups of police officers. All of the reports related a large object flying at low altitude. The craft was of a flat, triangular shape, with lights underneath. This giant craft did not make a sound as it slowly moved across the landscape of Belgium. There was free sharing of information as the Belgian populace tracked this craft as it moved from the town of Liege to the border of the Netherlands and Germany. Most witnesses reported that the objects were silent. Regarding the supposed radar locks by Fs , Dunning stated The pilots also got intermittent contact with objects, but they appeared and disappeared and moved up and down too fast, including going underground. The pilots never saw anything at all. SOBEPS reported that they obtained radar lock on targets nine times; but the Belgian military only reported three such locks, and upon analyzing the data, all three radar locks were on each other. The other contacts were all found to be the result of a well-known atmospheric interference called Bragg scattering. They took a sheet of styrofoam, cut it into a triangle, painted it black, embedded a flashlight in each corner, then hung it from a string. You remember that you saw something you took for a bright star or an airplane, thought nothing of it at the time, but this amazing new story makes you realize that what you saw must have been this UFO. The reports Meessen claims for the original November 29 incident were indeed received, but only after more than a week of aggressive and repeated solicitation in the mass media. It is only much later retellings of the story that wrongly assume all 2, were reported as people were watching the Fs chase the UFOs, or that all initial reports came independently on that first night. It was simply a psycho-social phenomenon, which is why there is no evidence and only the one questionable photograph. If 13, people did all actually see something that they took for a UFO at the time, I guarantee you that more than just a single photograph would have resulted. Phoenix Lights One of the more famous appearances of these craft was during the event known as the "Phoenix Lights", where multiple unidentified objects, many of them black triangles, were spotted by the residents of Phoenix, Arizona and videotaped by both the local media and residents with camcorders across multiple evenings beginning on Thursday, March 13, Some lights drifted as

low as feet and moved far too slowly for conventional aircraft and too silently for helicopters. Some of the lights appeared to group up in a giant "V" formation that lingered above the city for several minutes. Many residents reported one triangle to be over a mile wide that drifted slowly over their houses blocking out the stars of the night sky. An official report made by the Air Force about the incident concluded that the military had been testing flares launched from conventional aircraft during that time. Eyewitnesses confirmed military jets were scrambled from nearby Luke Air Force Base , but instead of launching flares, they were seen chasing after some of the objects. The next few nights, in an attempt to recreate the incident, local pilots flew prop-planes over the city in a "V" formation, but the sounds of their engines were easily heard. The original lights made no sound. Flares were also deployed above Phoenix. Five on-duty police officers around these locales, along with various other eyewitnesses, sighted and reported a massive, silent, triangular craft operating at an unusual treetop level altitude and speeds. One of the police officers even managed to get a single, yet ambiguous polaroid photograph of the object. The lights were captured on video by some witnesses. According to some ufologists, the video evidence suggests that the lights kept the geometrical shape and moved as if they were attached to each other through a dark object. In February , an amateur photographer Jeff Templin snapped pictures of a triangular aircraft while photographing wildlife in Kansas. The events of 17 February were documented by multiple groups of witnesses. All of the reports consist of a multiple dark triangular objects in the sky with blinking white and red lights, at around 6: The craft was also seen on 19 January at around 5: The object was described as dark on the bottom with lights and silvery on top. Other sightings include 28 December at around 8: The craft seemed to be flying low to the ground, almost skimming the tops of trees. The only evidence for such an aircraft is based on several reported sightings of mysterious flying triangle aircraft over Antelope Valley , an area of desert in southern California. This stretch of desert draws people interested in potential "black project"-related aircraft, because it is close to several known military research and testing areas, such as Edwards Air Force Base in California, and United States Air Force Plant It was alleged to have been used in the Gulf War to provide laser designation for Lockheed F Nighthawk bombers, for targeting to use with laser-guided bombs. The TR-3 was claimed to have been manufactured by Northrop. It is, therefore possible that TR-3 is merely a corruption of Tier III, a name given to a cancelled large reconnaissance unmanned aerial vehicle UAV flying wing designed around the time of alleged sightings of the Black Manta, circa â€” Wintersdorff and George R. Cota, employees at Teledyne Ryan, a firm specialized in building unmanned reconnaissance aircraft. On May 10, , a design of an aircraft was patented by Teledyne Ryan under number Des. This design was made by Waldo Virgil Opfer. The first design is unmanned, the second one manned. Whether one of these designs is related to the above-mentioned TR-3 is not positively identified, but it is a coincidence that TR also stands for Teledyne Ryan. Teledyne Ryan was acquired by Northrop Grumman in

Chapter 7 : PlatoÂ's Cosmology: The Timaeus

The arrangement of a finite collection of geometric objects is the decomposition of the space into connected cells induced by them. We survey combinatorial and algorithmic properties of arrangements of arcs in the plane and of surface patches in higher dimensions.

Arrangements and Their Applications by Pankaj K. The arrangement of a finite collection of geometric objects is the decomposition of the space into connected cells induced by them. We survey combinatorial and algorithmic properties of arrangements of arcs in the plane and of surface patches in higher dimensions. We present many applications of arr We present many applications of arrangements to problems in motion planning, visualization, range searching, molecular modeling, and geometric optimization. Some results involving planar arrangements of arcs have been presented in a companion chapter in this book, and are extended in this chapter to higher dimensions. Show Context Citation Context Pach and Sharir [] were the first to prove a subcubic upper bound on the complexity of a single cell in arrangements of triangles in R 3. Strategies for Polyhedral Surface Decomposition: Dobkin, Nadia Shouraboura, Ayellet Tal , " This paper addresses the problem of decomposing a complex polyhedral surface into a small number of "convex" patches ie, boundary parts of convex polyhedra. The corresponding optimization problem is shown to be NP-complete and an experimental search for good heuristics is undertaken. Even though they form the building blocks of bottom-up solid modelers, it is more often the case that the convex structure of a geometric shape is lost in its representation. We are then presented, not with the solidmodeling problem of putting together primitive convex objects, but with the reverse problem of extracting convexity out of a complex shape. The classical example is that of cutting up a 3-polyhedron into convex pieces. This is often a useful, sometimes a required, preprocessing step in graphics, manufacturing, and mesh generation. The problem has been exhaustively researched in the last few years [2][18]. Computing envelopes in four dimensions with applications by Pankaj K. Comput , " Let F be a collection of nd-variate, possibly partially defined, functions, all algebraic of some constant maximum degree. We present a randomized algorithm that computes the vertices, edges, and 2-faces of the lower envelope i. We also present data structures for i performing nearest-neighbor and related queries for fairly general collections of objects in 3-space and for collections of moving objects in the plane and ii performing ray-shooting and related queries among n spheres or more general objects in 3-space. These structures improve previous solutions to these problems.

Chapter 8 : Castle Construction: Building a Split-Face Block Castle-Guest House from mostly Recycled Ma

Castles in the air has been the version predominant in English since the late 16th century, but castles in Spain, from Old French chÃ¢teaux en Espagne, was used in the late medieval period and occasionally in more recent times. The form of the saying in Old French, known from the 13th century, may refer to the fact that much of Spain in the Middle Ages was under Moorish control, so any scheme to build castles there was clearly unlikely to succeed.

The difference seems to be that the former, but not the latter, directs its creation with an eye toward what is best. Here Plato turns to the old Presocratic question: His answer both combines and transcends theirs. It mentions the traditional Earth, Air, Fire, and Water of Empedocles , but goes beyond them, analyzing them in terms of mathematical objects shades of the Pythagoreans and empty space the invention of the atomists. The four elements The intrinsic nature of fire, water, air, and earth 48b , and how they came into being. The receptacle is that in which all becoming takes place. The fires that you see coming into being and being extinguished are just appearances, in the receptacle, of the Fire Itself the Form. But how do they come into being? What are they made of? Each particle is a regular geometrical solid. There are four kinds of particles, one for each of the four kinds of matter. Each particle is composed of elementary right triangles. The particles are like the molecules of the theory; the triangles are its atoms. The argument that all bodies are ultimately composed of elementary right triangles is given at 53c-d: Every surface bounded by straight lines is divisible into triangles. Every triangle is divisible into right triangles. So all bodies can be constructed out of isosceles and scalene right triangles. See diagrams, RAGP Construction of solid particles out of the faces The construction of the particles is described at 54dc. The particles are identified with the four elements at 55db. Click on the names of the elements to see a diagram of a particle of that element: Transformation of elements described at 56cc Inter-elemental transformations are among fire, air, and water only. Earth cannot be transformed into any of the others 54c, 56d. Transformations can be described at the level of equilateral triangles that are the faces of the three solids. Since a fire molecule has 4 faces one F is made up of 4 t , an air molecule 8 one A is made up of 8 t , and a water molecule 20 one W is made up of 20 t , any of the following transformations for example are possible. Each transformation is represented by an equation on the left; its geometrical basis is shown by the equation on the right. Pythagoras Like Pythagoras, he made the physical universe fundamentally mathematical. But whereas Pythagoras thought that everything was made of numbers, Plato made geometrical figures - ultimately, triangles - the atoms of his system. Democritus Plato, like Democritus, was an atomist. There atoms come in infinitely many sizes and in every conceivable shape, the vast majority of them being irregular, a motley multitude, totally destitute of periodicity in their design, incapable of fitting any simple combinatorial formula. Empedocles Like Empedocles, Plato recognized that four elements - earth, air, fire, and water - underlay all physical changes. But unlike Empedocles, he found a common atomic ingredient underlying the elements. Hence, unlike Empedocles, he could explain the transformation of one element into another. We will consider two of them and suggest how Plato might have responded to them. Since earth is made of different atoms isosceles triangles from the other elements scalene triangles , this transformation is impossible, as Plato knew. So what happens when, e. The transformation of one element into another is not an observed phenomenon, but a theoretical explanation of observations. Plato can account for this phenomenon by theorizing that it is the water and air components of wood that are converted into fire; the earth components remain unburned in the ashes that remain. The transformation of elements seems to violate the principle of conservation of matter. There are 20 equilateral triangles, t, involved in this equation. The problem is that the volume of one water atom i. If we let s be the length of a side of each equilateral triangle t that is a face of each of the polyhedra, we can calculate these volumes: Remember that matter is not a concept Plato is working with. Hence matter, as we understand it, is not what Plato needs to worry about conserving. In his view, a material object consists, ultimately, of the triangular atoms composing the polyhedral corpuscles of the four different elements. Contained within these polyhedra is empty space - the

receptacle, as he called it. So it is not matter that Plato must conserve, but triangles. On his theory, when a corpuscle of water is broken down and converted into corpuscles of fire and air, all of the original triangles in the corpuscle of water are conserved. And the triangles combine to form the surfaces of the polyhedra. Hence it is not the total volume of his polyhedra, but their combined surface area that must be conserved. If you press him to say what happens to that portion of the matter within the icosahedron which cannot be enclosed within the equivalent surface area of smaller polyhedra, Plato would say that there is no such matter:

Chapter 9 : Black triangle (UFO) - Wikipedia

2 Shapes in architecture plane is the point with coordinates (x,y,âˆ’z). Rotating the point around the z-axis over 90 yields the point (âˆ’y,x,z) or (y,âˆ’x,z), depending on the orientation of the rotation.

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