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autumn The TJCAA Quarterly

2017

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Message from the President

Employment Opportunities

We've moved!

Did you know?

TJCAA's Business Certifications

- Alameda County Small, Local Emerging Business
- Bay Area Green Business Program, Green Business
- City of Oakland Local Business Enterprise
- California DGS Micro Business (SB (micro))
- Port of Long Beach SBE
- Port of Oakland LIABE/SBE/VSBE
- San Diego County Water Authority SBE
- SoCal Network SBE
- CA PUC WBE
- Sacramento Municipal Utilities District (SMUD)

Message from the President, Gianna Zappettini

Our Oakland office moved effective September 18, 2017 (more info at right). If you have ever been a part of a relocation, you know that it is a monumental task requiring lots of coordination, cooperation, and organization. It also benefits from collaboration by numerous sources to help resolve problems that are bound to (and did) come up. The same qualities are essential for a successful engineering project. If we can be of assistance to you on your next project, let us know, as we are fully operational from our Oakland, Walnut Creek, and Sacramento Area offices.

Employment Opportunities

TJCAA is looking for qualified engineers to work on great projects with great people. To view and apply for open career positions, visit our website at www.tjcaa.com.



We've moved!

After 10 years in the Cathedral Building, TJCAA has moved its Oakland office down the block to 1330 Broadway, Suite 1101, Oakland, CA, 94612-2503.



Please update your info and use this address should you need to visit or send anything to us in Oakland.

Our Oakland staff is excited about the new location, which has "fancy" elevators that don't break down, bike storage, water fill stations, and an auto elevator for parking! Hey, we're engineers; it's the simple things that make us happy. Our phone number and extensions remain the same so please feel free to call and say hi.

Thank you for your continued support over the years!

Did you know?

Here we have a couple of seemingly unrelated photos, one of a Roosevelt dime with a tiny red dot on it, and one of distant galaxies (next page).

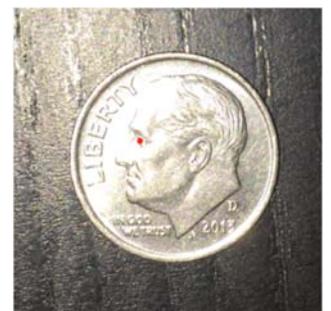
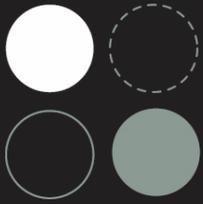


Image Source: CC

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Curalium Consulting provides technical writing and editing services for engineers and scientists.

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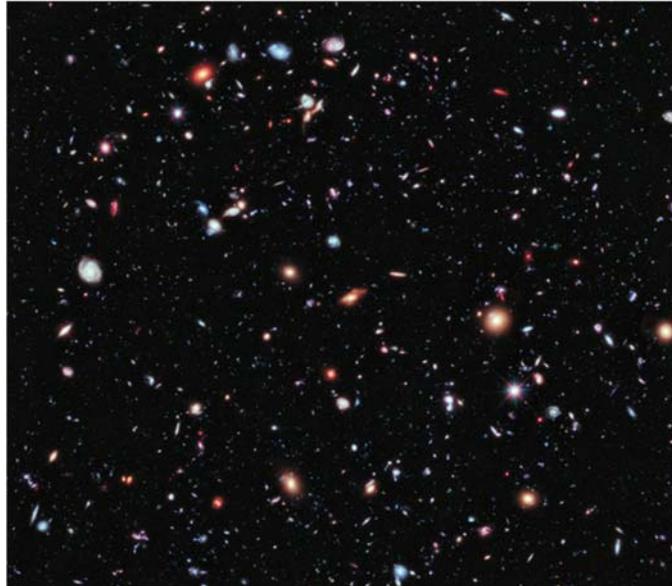


Image Source: NASA and STScI

First, let's focus on the space photo. This beautiful image is actually an assembly of images from NASA's Hubble Space Telescope. This photo shows what is called the eXtreme Deep Field, or XDF. To get this image, NASA pointed the Hubble's two premier cameras at a very dark patch of our sky in the constellation of Fornax in 2003 and 2004 on 50 different days for a total exposure time of 2 million seconds. Analysis of the XDF image revealed that it shows two stars, and the rest of the things in this photo are—brace yourself—*about 5,500 galaxies*. For reference, NASA estimates that our own galaxy, the Milky Way, contains more than 200 billion stars.

The deep field photos give us mere humans a special ability to see into the

past. NASA explains, "The universe is 13.7 billion years old, and the XDF reveals galaxies that span back 13.2 billion years in time. Most of the galaxies in the XDF are seen when they were young, small, and growing, often violently as they collided and merged together." How does that work? The light from those events is just now getting here, so "the XDF is a time tunnel into the distant past. The youngest galaxy found in the XDF existed just 450 million years after the universe's birth in the big bang." (nasa.gov) Stefano Cristiani, of the Space Telescope-European Coordinating Facility said "In my view the Hubble Deep Fields are some of the images that have made the greatest impact on observational cosmology so far." (spacetelescope.org)

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Did you know?

What methodology did you utilize?

autumn The TJCAA Quarterly

2017
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NASA presents these notable statistics on the Hubble Space Telescope:

- It has made more than 1.3 million observations since 1990, and astronomers using Hubble data have published more than 15,000 scientific papers, making it one of the most productive scientific instruments ever built.
- Hubble has traveled more than 4 billion miles along an orbit currently about 340 miles in altitude, moving at about 17,000 miles per hour.
- Hubble has the "pointing accuracy of .007 arc seconds, which is like being able to shine a laser beam focused on Franklin D. Roosevelt's head on a dime roughly 200 miles away." (nasa.gov)

So, we are back to that dime again, but there is another way it plays in. If you hold a dime at arm's length and look at Roosevelt, the size of his eyeball (that red dot) shows you about how much of the night sky is depicted in the XDF image, in a part of the sky that looks very dark to our eyes, and *it shows about 5,500 galaxies.*

Want to know more about these topics? Read *Astrophysics for People in a Hurry* by Neil deGrasse Tyson (W. W. Norton & Company 2017).

What methodology did you utilize?

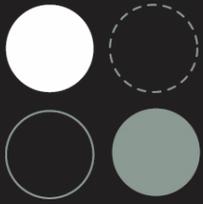
Have you ever read or written about a methodology? Coral Cavanagh, technical editor at Curalium Consulting, notes that authors often like to toss in the word "methodology" and other long words. Sometimes, these showy words are not only inferior substitutes for simpler words, but may also be just plain wrong.

"Methodology is an interesting topic," Coral says, "but most of the time I see the word, the author is actually just talking about a method." Engineers, scientists, and other researchers use various methods to gather data, analyze it, and evaluate the results, and their reports need to describe or refer to those methods. Concise reports typically do not explain the methodology, that is, the research and study used to select those methods.

In the words "biology" and "ophthalmology," the suffix "ology" means a subject of study or a branch of knowledge (en.oxforddictionaries.com). Combining "ology" with "method" we get "methodology," or a branch of study/body of knowledge surrounding methods. Methodology is the study of methods. A Methodology section in a document might include a discussion of which methods exist, which are relevant, why we chose the ones we did, and why our application of the methods will give us an answer to the question at hand.

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What methodology
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Entertainment
News

autumn The TJCAA Quarterly

2017
www.tjcaa.com

Coral tells us that the word “utilize” is similarly in broad use as a posh substitute for “use,” perhaps because it sounds more formal and businesslike to some people. “Utilize” carries a more specific meaning than “use,” in that it denotes making practical and effective use of something. “Utilize” has its place, for example, when one uses something that otherwise wouldn’t be used, or when one gets the fullest or most profitable use out of something.

Unfortunate words can overdress documents of all kinds, acting as pretentious (and sometimes incorrect) substitutes for plain words. The *Oxford Guide to Plain English* (UOP Oxford 2013) advocates clear, simple writing that is enjoyable to read. While the *Guide* assures us that there is room for interesting words, it discourages us from overusing pretentious “business-ese.” The *Guide* has a handy Plain English Word List with two columns, business-ese on the left, and simpler choices on the right. Indeed, “utilize” appears in the left column, as do “predominantly” (mainly), “prior to” (before), and “increment” (step or increase). If you overuse words in the left-hand column, the *Guide* tells us, “your writing could be perceived as pompous, officious, and long-winded.” Ouch! We engineers were also chastened by the *Guide’s* explanation of the “troublesome” word “methodology.”

When faced with writing a report, memo, technical document, or even an email outlining a project, the lesson here is to use words that help your

reader understand your content and avoid words that confuse or take away from your intent.

Curalium Consulting provides technical writing and editing services for engineers, planners, and scientists. (curalium.com)

Entertainment News: The Solar Eclipse

TJCAA Senior Vice President Terry Cavanagh traveled with his family to the “totality band” during the recent eclipse, and we got his impressions. “Wow!” Terry said. He informed us that the group of seven people, who camped in rural Idaho near Cascade Lake, used “Wow!” frequently and loudly during the 2 minutes and 40 seconds of totality. “Before the eclipse began,” he says, “I set up a telescope with a solar filter, so we could watch the action unfold that way, as well as with our stylish solar glasses.”

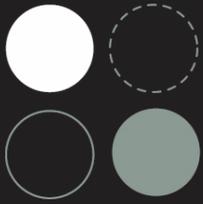
Through the filter/telescope combination, the group could watch the eclipse’s progress, take photos, and even see sunspots. Then, during totality, he said, they just gaped at the sky. “We were blown away.” Even the crippling traffic on the ride home could not squelch the group’s enthusiasm. “We’re going to see the next one, too!”



Photo by Eli Cavanagh

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Dates to Note

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Sep 22	The Autumn Equinox
Sep 22–23	World Maker Faire, New York
Oct 8–11	ASCE Convention, New Orleans
Oct 16	Dictionary Day
Oct 19	Third Thursday at Latham Square, Oakland, 5–8PM
Oct 21	TJCAA Employee and Family Event at Topgolf, Roseville, CA
Oct 24	113th MLB World Series Begins
Oct 29	Kelly Parks Big Band, The Sound Room, 5–7PM
Nov 5	Daylight Savings Time Ends
Nov 6	Saxophone Day
Nov 7	Election Day
Nov 18	120th Big Game: Cal vs. Stanford
Nov 26	Kelly Parks Big Band, The Sound Room, 5–7PM
Dec 13–14	Geminid Meteor Shower

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