



Blogs
Blog

Ham Radio Operators Have Been Design Engineering Innovators



[Nancy Golden, Contributing Writer](#)

1/23/2016 [8 comments](#)

NO RATINGS

Readers of *Design News* come from many areas of expertise and we all have one thing in common — we all love innovation. We are made to create and as we see on *Design News*, that creativity takes many different forms.

For instance, ham radio was at the start of radio communications right alongside broadcasting and wireless telegraphy (think Morse code). While no one knows where the term “ham” originated, it refers to amateur radio operators and has a long history with the first licenses granted in 1912.

Amateur radio has come a long way from the original and dangerous “spark” method of generating radio waves, using a strong electrical arc. If you follow the history of amateur radio enthusiasts, they have continually sought more efficient designs and improved communications that incorporate the latest technology. Just like any design engineer, hams are constantly striving to use their technical skills and the parts and equipment available to them to improve and innovate, in their case ways to communicate through radio waves.

ham radio operator



(Source: The American Radio Relay League, Inc., The National Association for Amateur Radio, Website www.arrl.org)

Reasons to consider joining the ranks of ham radio operators:

- Hams have an illustrious history. Amateur radio operators played vital roles during World War II as operators and engineers. That tradition of service extends to the present with their support of public safety organizations and relief organizations during national disasters. The ARRL (The American Radio Relay League) has been in existence since 1914 and serves as the primary representative of amateur radio operators at local, state, federal and international levels of government and to regulatory bodies such as the FCC (Federal Communications Commission). ARRL has a legacy of public service that started in 1935 when ARES (Amateur Radio Emergency Service) was created to provide training so that radio operators could assist in providing communications during times of disaster management.

ham radio operators lending emergency and disaster assistance



(Source: The American Radio Relay League, Inc., The National Association for Amateur Radio, Website www.arrl.org)

- Hams are technically proficient in many areas. There are numerous amateur radio satellites in service orbiting the earth providing voice, Morse code, and data communications. Most astronauts are also hams and the International Space Station houses a ham station that can be used by the astronauts and hams on the ground.

amateur radio satellite orbiting space

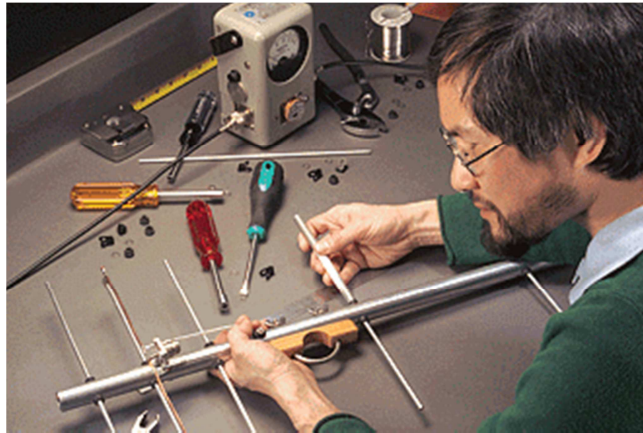


(Source: The American Radio Relay League, Inc., The National Association for Amateur Radio, Website www.arrl.org)

- Hams use their technical skills to communicate through radio waves in many different ways. To learn more about the DIY

magic of ham radio check out this [video](#).

Ham radio enthusiasts were the original hackers



(Source: The American Radio Relay League, Inc., The National Association for Amateur Radio, Website www.arrl.org)

Each decade of technological advancement has found hams at the forefront. In the 1970's an extensive network of relay repeater stations built by hams provided a way for regional low-power communications, the 1980's saw hams utilizing microprocessors in a new age of digital communications, and today hams are continually searching for ways to utilize the potential of computer technology and the internet in their constant quest to improve radio communication.

Amateur radio encompasses many different hobbies under one umbrella. To name just a few, hams today can be found creating new computer applications, bouncing signals off of meteor trails and earth-moon-earth reflections, and conducting research like Nobel Prize winner in Physics Joe Taylor, who studies weak signal detection to facilitate low power communication. Public service activities that include emergency response and assisting any organized effort where communications is essential makes ham radio a valuable asset to the community. It is also a great way to make new friends and is just plain fun!

[Learn more electronics trends and developments at [Pacific Design & Manufacturing](#), Feb. 9-11, at the Anaheim Convention Center.]

Anybody can join -- all walks of life are represented on the airwaves and you are on a first-name basis with everyone else regardless of your profession. But unlike my CB radio days, becoming a ham does require getting a ham radio license. By getting the first license that is available for newcomers, called the technicians license, you will be able to begin communicating on the airwaves. I am currently studying to pass the 35-question exam that covers rules, operating procedures, and basic electronics so that I can join the ranks of ham radio operators. If you would like to get more information or learn how you too can start down the road of being a ham radio operator, visit www.arrl.org/ for lots of great information.

Nancy Golden started her electronics career at Dallas Semiconductor and moved to Optek Technology where she was a test engineer for several years, eventually moving up to test engineering manager. Nancy became especially experienced in hall effect characterization and test and also gained experience with photologics, LEDs, VCSELs, and fiber optic transmission. She was also the first person to become a Certified TestPoint Application Specialist (CTAS) by Capital Equipment Corporation and has done contract work for Hitachi and Andrews Corporation and control room software for NBC in Testpoint. While employed at Optek Technology she also authored articles for Test and Measurement World on test system development. Nancy owns a small business called Golden Technical Creations, a service oriented company that provides consulting, teaching, PIC programming, course development and web design to its customers. She also has a M.A.R. with a focus on intercultural studies and is an adjunct faculty member at Dallas Christian College.

Comments

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Gold

Nice plug for amateur radio

[alzie](#) 1/26/2016 10:46:10 PM

NO RATINGS

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A half century ago, my dad got into AR for his own edification as well as mine.

I was one of those kids with a natural bent for technology, and

radio was one of the few intros to electronics.

I worked at "Griefkit" back in the 70s

as a service tech on their AR equipment, but

didnt get my ticket at that time.

Code was too daunting.

I didnt want just a novice ticket.

But, that was one of the launching points for my career in engineering.

Fast fwd to 2010, my buddy convinved me / us to go for it since

there was no longer the code reqmt.

Yes, I m one of those codeless weenies.

Yes, AR is a great goal / motivation toward innovation.

Thanx for the good words.

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User Rank

Gold

Re: My Ham Radio career

[SiliconGraybeard](#) 1/26/2016 8:07:03 PM

NO RATINGS

Ham radio led me through my career, from working as a bench technician on a VHF (2-meter) radio at a company that started out making CB linear amplifiers, through a satellite communications business, through military/defense electronics and finally to commercial aviation. I look at a 787 and think of the various radios I designed on that, and I think it all goes back to building and playing with a Heathkit shortwave receiver, which got me interested enough to take a Novice test in 1976.

At every level in every company, there were hams that I worked with. It opened tons of doors, and I'm pretty sure helped land a couple of those jobs. When I published articles in the ham radio magazines, that was a way for them to see even more of what I could do. Sort of a second resume.

Ham radio is really about a thousand hobbies with one label - from the outside. On the inside, hams know some of the groups. You have hardware designers, software designers, communicators, public service/disaster communications, TV, keyboard "digital" modes, fox hunts, weak signal VHF, guys who use WiFi hardware to communicate over a hundred miles...

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User Rank

Platinum

Re: My Ham Radio career

[Nancy Golden](#) 1/26/2016 12:40:30 PM

NO RATINGS

Jay, thanks for sharing your story - that is awesome! I think there are a lot of hams out there with similar experiences as to how ham radio helped them in their career. Thanks for the tip on the one watter - I found it at kitsandparts.com with extensive documentation on their website - looks like fun!

Anyone else with stories about ham radio and how it has enriched your personal and professional life - please feel free to share! You guys are really motivating me to study for my technician's license!

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User Rank

Iron

Re: My Ham Radio career

[jaydhall](#) 1/26/2016 12:27:03 PM

NO RATINGS

Early in my engineering career, I interviewed at a company where the future boss told me that he had never been sorry after hiring a ham radio operator in his engineering department. This surprised me and thankfully I took the job! Spent a year and a half living in Sweden where I used the Ericsson club ham station, SK0LM. This job led to a stint at Bell Labs. Which was way cool.

Some of the hams I have met were world class people. All walks of life and different experiences. WWII radio operator with CW key strapped to his leg riding in the back of a jeep, operating while in motion and being under fire. Ozzie, WB6PEW, who was part of Lee De Forests engineering lab team. So many more good stories.

If you want to build your own transceiver, there is a kit called a one watter which is available for all HF bands. Quite a lot of fun for less than \$50. Cool to build and operate your own radio.

I always wonder where I would be if I was not a ham and was not offered that job.

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User Rank

Platinum

Re: My Ham Radio career

[Nancy Golden](#) 1/26/2016 10:03:43 AM

NO RATINGS

DB - we are very interested in building our own gear. That is another thing I like so much about ham radio - we are encouraged to build and repair our own equipment. Thanks so much for the tip - I just checked it out and Soldersmoke looks like a great resource!

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User Rank
Gold
Re: My Ham Radio career

[DB Wilson](#) 1/26/2016 8:55:28 AM

NO RATINGS

If you're interested in building your own gear, you may want to listed to the Soldersmoke podcast and blog. I have learned more about how receivers work from listening to the podcasts that I learned in school. (I was in power systems and audio and not in much of anything above 20 kHz.)

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Platinum
Re: My Ham Radio career

[Nancy Golden](#) 1/25/2016 12:04:06 PM

NO RATINGS

Roger, thanks so much for sharing your experiences in ham radio, givinbg further testimony to the advantages of this wonderful hobby. I loved learning about your adventure and I'm looking forward to exploring ham radio for myself - my husband is also studying for his technician license and we are having a lot of fun discussing the possibilities for our home base station.

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User Rank
Iron
My Ham Radio career

[rogerwhitaker](#) 1/23/2016 11:17:05 AM

NO RATINGS

Thanks for the excellent article about my favorite hobby. I have been a licensed ham radio operator since 1957. I started very young, passing my FCC test at age 11. I still have my original call sign more than a half century later. Ham radio has taken me places I would never have seen otherwise and shaped my working career as an electrical Engineer.

Ham Radio is one of the best lifetime hobbies anyone can have, if they are so inclined. It took me on an adventure to North Africa as the ham radio operator on the hospital ship Hope which led to my crossing back across the Atlantic as a crew member on a 56 foot sail boat. I have met, even occasionally, in person, some wonderful people and life-long friends.

As the article points out there are many, many facets to this hobby ranging from emergency and public service participation to contests, satellite communications, digital communications, building your own gear and so much more.

If you are interested in Amateur Radio, a good starting point is the American Radio Relay League's web site. A R R L dot O R G

73 K9LJB