



**Amherst Diversity Commission Honors
Arab American Contributions to
Technology and Inventions**

Arab American Heritage Month celebrates the Arab American heritage and culture and pays tribute to the contributions of Arab Americans and Arabic speaking Americans. Please click on any of the names below to learn more about their contributions to technology.

**Taking that Jog and listening to your music.....
Using our Mobile Phones on a Daily Basis.....**

[Anthony Fadell](#)

Anthony Fadell, is an Arab American inventor and entrepreneur from Michigan, who was instrumental in the development of the iPod. This revolutionary technology fueled Apple's rise to a household name.

Apple CEO Steve Jobs hired Arab American inventor Anthony “Tony” Fadell and put him in charge of a new special projects group within the company tasked with creating “music on the go”.

The result was the iPod, which launched in 2001. Fadell, who is now known as “the father of the iPod,” went on to oversee the first 18 iterations of the device before Jobs gave him his next assignment: to create a mobile phone with many of the same features as the iPod.

This time, the end product was the iPhone, which essentially allowed people to carry a highly compact computer with internet capability around at all times, and, in the process, changing the way people access information. Fadell was involved with developing the first three generations of the iPhone.

Encrypting your documents...

Taher ElGamal

Taher ElFamal, an inventor of discrete log cryptosystem. The ElGamal encryption system is used in security and digital signing. His invention was a foundation for cryptography that inspired encryption variations from others.

Elgamal’s work became even more influential after the National Institute of Standards and Technology (NIST) adopted it as the Digital Signature Standard (DSS). “Like the name implies, it became the standard for electronic signatures,” Gardner explains.

And according to Abdulrahman Henedy, an Arab American entrepreneur and founder of Financeive, Elgamal’s invention of the discrete logarithm was also an important milestone in cryptography. “His work inspired other encryption variations and paved the way to create more advanced algorithms, like Advanced Encryption Standard,” he explains.

In addition, Elgamal was the driving force behind the Secure Sockets Layer (SSL), a protocol that keeps online communications like email and instant messaging secure. Because of this major technological development, he is known as the “father of SSL.”

When Medical Intervention is necessary...

[Dr. Michael DeBakey](#)

Dr. Michael DeBakey is known as the pioneer in the development of the artificial heart. He was the first to use the external heart pump successfully in a patient. Dr. DeBakey is also credited with creating a mobile army hospital that increased the survival rates of wounded soldiers significantly throughout his career.

Dr. DeBakey earned his medical degree and served in the Surgical Consultants Division of the Army Surgeon General's Office. He along with his colleagues developed special units dedicated to providing surgical care to soldiers wounded near the front lines. They were best known for their work during the Korean and Vietnam conflicts, when they were known as the Mobile Auxiliary Surgical Hospital (MASH) units.

DeBakey’s surgical contributions [continued for the next several decades](#), and included performing the first successful removal of a blockage of the carotid artery (1953), developing the concept behind coronary bypass surgery (1963), pioneering the field of telemedicine with the first demonstration of open-heart surgery transmitted overseas via satellite (1965), and being the first to use a partial artificial heart (1966).

Enjoy watching T.V. after a long day....

Hassan Kamel Al-Sabbah

Hassan Kamel Al-Sabbah was hired by General Electric (GE) to work in its Engineering Laboratory under a contract that awarded him a dollar for each of his patents," Some of the patents Al-Sabbah was awarded during his time at GE include three for innovations in television transmission technology and two for cathode ray tubes.

Though Al-Sabbah died in a car accident 1935, GE engineers continued to rely on the technology he invented, including developing the liquid crystal display (LCD) based on one of his patents. Al-Sabbah made numerous other significant contributions to science, technology and engineering, especially in the field of solar energy.

Communicating.....Emotional Recognition Technology

Dr. Rana El Kaliouby

While Rana El Kaliouby was completing her doctoral research at the University of Cambridge in England in the early 2000s, she never felt as though she could ever truly connect with her loved ones back home. "Away from her family and friends in Egypt, El Kaliouby wished her computer could better convey her emotional state,"

After earning her doctorate, El Kaliouby took a position as a research scientist in the Affective Computing group in the MIT Media Lab. There, she was part of a team that developed an "emotional hearing aid," as well as a pair of eyeglasses that could read emotions, along with social cues. Officially known as "the Emotional-Social Intelligence Prosthesis," El Kaliouby and a colleague created the wearable technology in 2006 for people living with autism who have difficulty identifying and processing other people's emotions as they communicate.

In 2009, El Kaliouby and the same MIT colleague co-founded a company called [Affectiva](#), which used deep learning, computer vision, speech science and vast amounts of real-world data to [develop emotion recognition technology](#). “Her pioneering technology accurately reads minute changes in facial expressions that convey emotions,” Nasralla says, adding that El Kaliouby is a member of the Women in Engineering Hall of Fame.