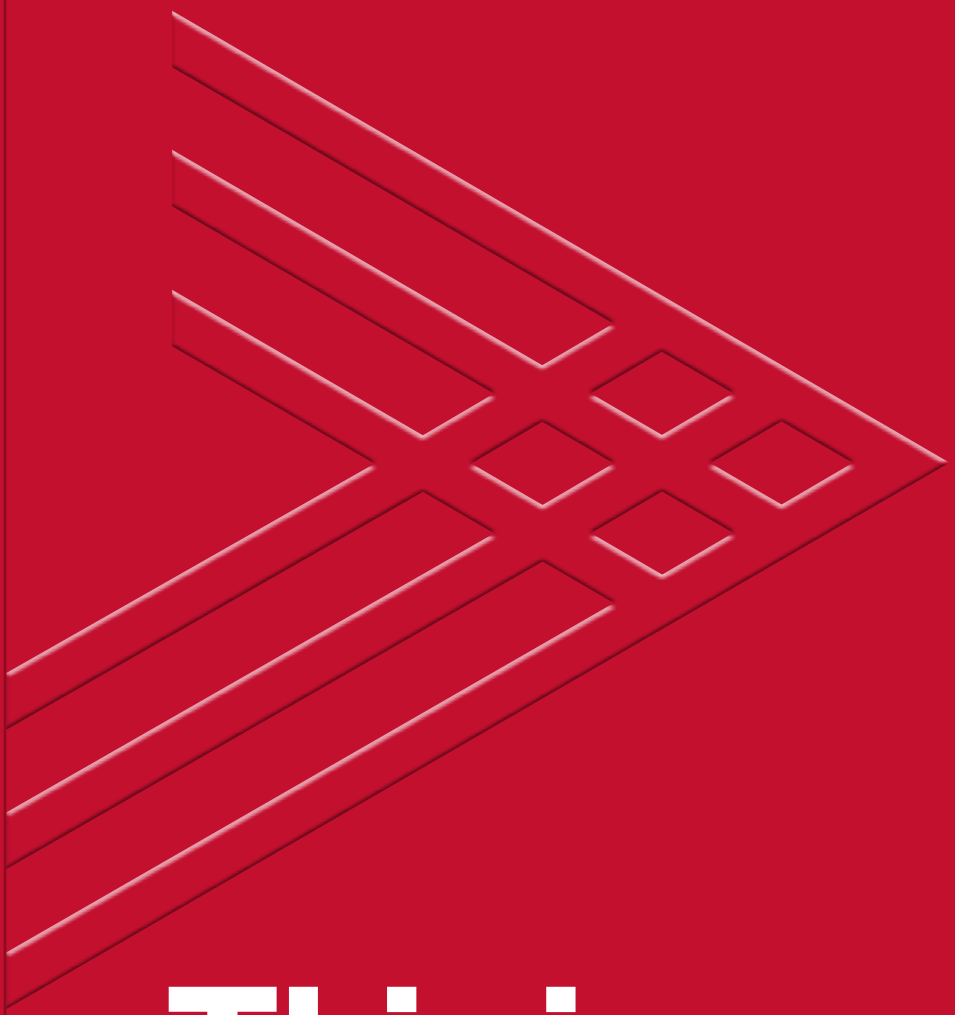
Carnegie Mellon University



This is for the founders.

Celebrating 50 years as Carnegie Mellon University

FOR THE FOUNDERS

For the fierce industrialists and staunch philanthropists who pioneered advancements in Pittsburgh and created a legacy of promise that touches every corner of the globe.

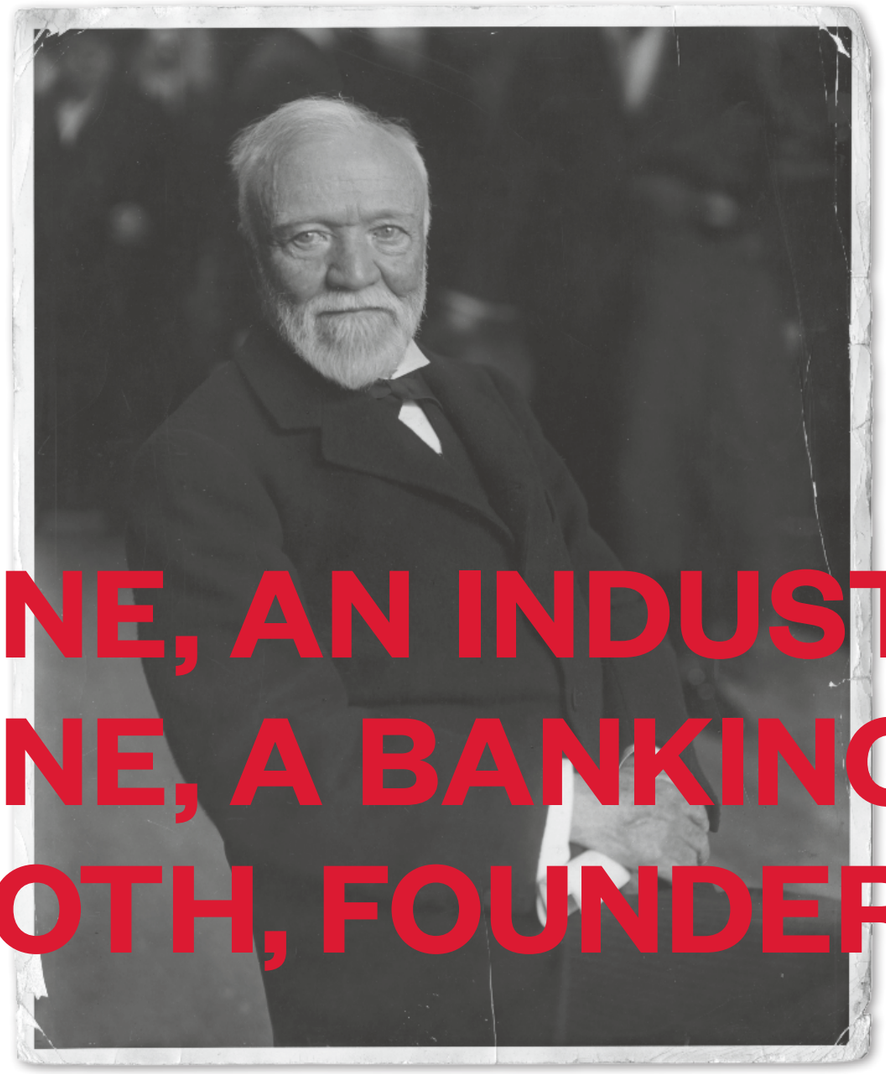
For the bold visionaries who stand ready to face new challenges with raw talent, deep focus, sharp intelligence and the sheer force of will.

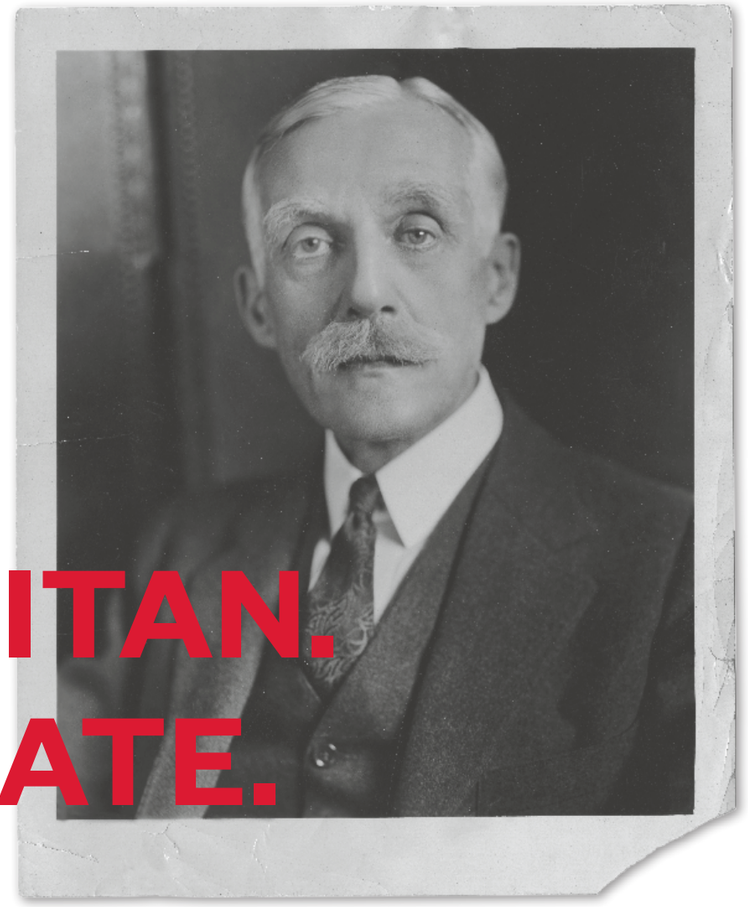
For the forward-thinking leaders who keep their hearts in the work and their eyes on the future, holding firm to the belief that their breakthroughs will change it for the better.

For those audacious enough to dare to question what is, courageous enough to imagine what could be, and tenacious enough to make it happen.

This is for the idealists and the investigators, the thinkers and creators, the dreamers and doers who have made Carnegie Mellon University what it is today, and who will shape the world we'll all inhabit tomorrow.

This is for the founder in all of us.





ONE, AN INDUSTRIAL TITAN. ONE, A BANKING MAGNATE. BOTH, FOUNDERS.

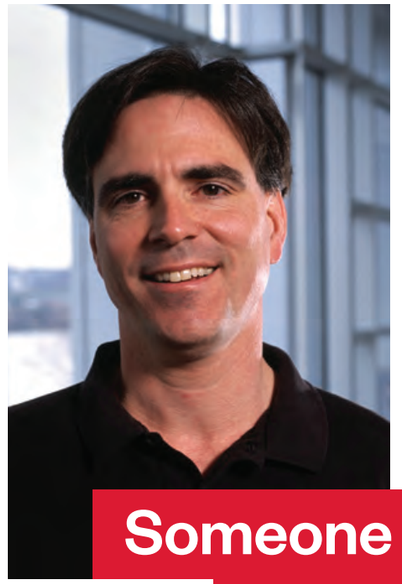
Andrew Carnegie, a self-made industrialist, entrepreneur and philanthropist, believed profoundly in the value of learning in transforming human lives and communities. He founded Carnegie Technical Schools to bring educational opportunity to the children of working-class Pittsburgh residents.

Andrew Mellon was a Pittsburgh banker, venture investor and U.S. Secretary of the Treasury who, with his brother **Richard,** financed the Mellon Institute of Industrial Research based on his conviction that advances in knowledge were the true foundation of future prosperity.

These founders of institutions of higher learning fostered inventive thinking and advanced humanity—and 50 years ago, their legacies converged when Andrew's son, **Paul Mellon,** proposed a merger to form what we now know as Carnegie Mellon University, setting the stage for the greatest minds in the world to become founders here, too.

THIS IS FOR THE FOUNDERS WHO USED THEIR VAST RESOURCES TO BUILD THRIVING INDUSTRIES AND VITAL INSTITUTIONS

The Pausch Bridge on our campus is a constant reminder of Pausch's legacy, lighting the way for generations of risk-takers to come.



Someone has to be the first penguin.

risk-takers

Brave enough to make the first dive into treacherous waters, taking that initial risk so that others can follow. It's a theory that was embraced and shared by CMU alumnus and Professor **Randy Pausch,** who took his own risks in many ways: developing Alice, a free educational computer programming tool; creating his "The Last Lecture" talk, video and bestselling book that have inspired millions; and co-founding CMU's groundbreaking Entertainment Technology Center.

AND FOR THE RISK-TAKERS WHO COURAGEOUSLY FORGE INTO UNCHARTED TERRITORY, SPARKING MOVEMENTS THAT INSPIRE FUTURE GENERATIONS

Each year, more than 21 million Americans are diagnosed with an eye disease.

But there could be a solution. With a grant from the U.S. Department of Veterans Affairs, **Shawn Kelly**, senior systems scientist at CMU, has developed a retinal prosthesis that could restore functional vision to the blind. This microchip and thin-film electrode array could assist people living with diseases such as macular degeneration, as well as veterans who have suffered head and eye wounds.

AND FOR THE VISIONARIES WHO SEE NEW METHODS FOR ADVANCING MODERN SCIENCE AND BRINGING NEW MEDICAL DISCOVERIES TO LIGHT

Parlez-vous français?

You might if you used Duolingo. Outside of school, learning a new language can be time-consuming and expensive. That's why CMU alumnus and Professor **Luis von Ahn** and alumnus **Severin Hacker** developed their app, which is now the world's most popular language-learning program, with 200 million users.

Fundador

Oprichter

创始人

Fondateur

Tagapagtatag

Gründer

元祖

Founder

Fondatore

설립자

Założyciel

Conditor

संस्थापक

AND FOR THE COMMUNICATORS WHOSE TECHNOLOGY LEAVES NOTHING LOST IN TRANSLATION

Not quite a person. Plenty of personality.

A unique mix of art and technology, Valerie was one of the world's first "roboceptionists." A collaboration between CMU Robotics Institute Research Professor **Reid Simmons** and School of Drama Professor **Anne Mundell,** she greeted visitors to Newell-Simon Hall with a lot of attitude and tons of stories to tell. Valerie came to life using technology that already existed, but was deployed in a different way. Using sensors to alert her to people passing by, Valerie could hold a conversation with users who typed their responses to her. A cutting-edge development at her inception in 2003, Valerie and her technology were later replaced by the still-active Tank — but she remains influential in artificial intelligence and social robots today.

AND THE COLLABORATORS WHO GIVE TECHNOLOGY A BOLDER VOICE

THE WORLD'S MOST PRESTIGIOUS PRIZE.

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Won by these founders.

Lars Peter Hansen
Tepper School Former Faculty
Economic Sciences, 2013

Dale T. Mortensen
Tepper School, 1967
Economic Sciences, 2010

Oliver E. Williamson
Tepper School, 1962, 1963
Economic Sciences, 2009

Ada E. Yonath
Mellon College of Science Postdoctoral Fellow, 1969
Chemistry, 2009

Edward S. Rubin
College of Engineering Faculty
Peace, 2007

John L. Hall
Mellon College of Science, 1956, 1958, 1962
Physics, 2005

Finn E. Kydland
Tepper School Faculty; Tepper School, 1972, 1973
Economic Sciences, 2004

Edward C. Prescott
Tepper School Former Faculty; Tepper School, 1967
Economic Sciences, 2004

Paul C. Lauterbur
Mellon Institute Former Researcher
Physiology or Medicine, 2003

Walter Kohn

John A. Pople
Mellon College of Science Former Faculty
Chemistry, 1998

Robert E. Lucas Jr.
Tepper School Former Faculty
Economic Sciences, 1995

Clifford G. Shull
Mellon College of Science, 1937
Physics, 1994

John F. Nash Jr.
Mellon College of Science, 1948
Economic Sciences, 1994

Merton H. Miller
Tepper School Former Faculty
Economic Sciences, 1990

Franco Modigliani
Tepper School Former Faculty
Economic Sciences, 1985

Herbert A. Simon
Dietrich College/School of Computer Science/Tepper School Former Faculty
Economic Sciences, 1978

Paul J. Flory
Mellon Institute Former Researcher
Chemistry, 1974

Otto Stern
Mellon College of Science Former Faculty
Physics, 1943

Clinton J. Davisson
Mellon College of Science Former Faculty
Physics, 1937

AND FOR THE INTELLECTUALS WHO BRILLIANTLY PUSH THE ENVELOPE AND PROPEL US TO A HIGHER PLANE OF THINKING

Robots with a soft touch.

When you think of robots, you probably imagine shiny, metal, angular figures. Instead, Professor **Chris Atkeson** and his students have explored human-size, soft, inflatable robots. Atkeson's creations—made out of things like balloons, fabrics and light plastics—are specifically designed to assist the elderly. They're less expensive to make, more portable and safer than regular robots. Atkeson drew his inspiration from balloons and pool toys, and in 2014, his robots served as the inspiration for the character Baymax in Disney's movie *Big Hero 6.*

Safer streets with clean needles.

For injection drug users, one of the most profound ways to prevent diseases is to use clean needles. CMU Associate Professor Emeritus **Caroline Acker** knew that no needle exchanges existed in the region, and that's why in 1995 she co-founded her own. Prevention Point Pittsburgh is still going strong more than 20 years later, as it continues its work of preventing the spread of HIV/AIDS and hepatitis C, conducting overdose prevention and response education, and connecting program participants to services such as substance abuse treatment. It was one of the first programs in the country to distribute naloxone, the drug that reverses opioid overdoses, to people at risk for overdose and their associates.

AND FOR THE OPTIMISTS WHO DELIGHT US WITH THEIR IMAGINATION AND THE HUMANITARIANS WHO HEAL COMMUNITIES WITH THEIR INITIATIVES

Meet the brain behind the brain.

innovators

Professor **Alison Barth** devotes her work to studying how the brain rewires itself after every experience. By examining neurons at the macro level, Barth and her lab's researchers are deepening the world's understanding of human memory, which will allow others to treat brain injuries more effectively and help people learn faster, more efficiently and with less effort.

AND FOR THE INNOVATORS WHO DEVOTE THEIR LIFE'S WORK TO LEARNING WHAT MAKES US TICK AND TACKLING HOW WE CAN LEARN MORE EFFICIENTLY

```
package client;

import common.Printer;

import java.rmi.RMISecurityManager;

import net.jini.discovery.LookupDiscovery;
import net.jini.discovery.DiscoveryListener;
import net.jini.discovery.DiscoveryEvent;
import net.jini.core.lookup.ServiceRegistrar;
import net.jini.core.lookup.ServiceTemplate;


public class TestPrinterSpeed implements DiscoveryListener {

                                           Manager());

                          iscover = null;

                          w LookupDiscovery(LookupDiscovery.ALL_GROUPS);
                           e) {
                          intln(e.toString());

    }

    public void discovered(DiscoveryEvent evt) {

        ServiceRegistrar[] registrars = evt.getRegistrars();
        Class[] classes = new Class[] {Printer.class};

        ServiceTemplate template = new ServiceTemplate(null, classes,
                                                        null);

        for (int n = 0; n < registrars.length; n++) {
            ServiceRegistrar registrar = registrars;
            ServiceMatches matches;

            try {
                matches = registrar.lookup(template,1)
            } catch(java.rmi.RemoteException e) {
                e.printStackTrace();
                continue;
            }

                int speed = printer.getSpeed();
                if (speed >= 24) {

                    printer.print("fast enough printer");
                } else {

                    System.out.println("Printer too slow at " + speed);
                }
            }

        }
    }
    public void discarded(DiscoveryEvent evt) {

    }

    public static void main(String[] args) {

        TestPrinterSpeed f = new TestPrinterSpeed();

        try {
            Thread.currentThread().sleep(10000L);
        } catch(java.lang.InterruptedException e) {

        }
    }

}
```

A one-code-fits-all language. Created by a founder.

When it comes to coding, one Java is all you need. In 1995, CMU alumnus **James Gosling** created the trailblazing tech language that allowed developers to "write once, code anywhere." With the ability to run the same program on many systems, Java eliminated the need to use different platforms for different machines — and now, it's the language of choice for more than 10 million developers worldwide.

AND FOR THE PROGRAMMERS WHO MAKE THINGS SIMPLE AND THE DEVELOPERS WHO MAKE CREATIVITY COME TO LIFE

The software used to design this very book. Developed by a founder.

Adobe, co-founded in 1982 by CMU alumnus **Charles Geschke**, was the first company in the history of Silicon Valley to become profitable in its first year. Even if you're not a frequent user of its famous suite of design software, you see hundreds of photos, logos, publications and advertisements touched by its products every day.

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He made the kidney exchange more efficient.

CMU Professor **Tuomas Sandholm** saw a need to increase the efficiency of kidney exchanges. That's why he developed the leading algorithms that find swapping cycles and chains among willing but incompatible donor-patient pairs. Since 2010, his work has powered the UNOS kidney exchange, where the algorithms optimize the exchange possibilities twice a week for 69 percent of all transplant centers in the United States.

He made more transplants possible.

In 2010, CMU Professor **Sridhar Tayur** conceived OrganJet, a company that provides free advice to patients about transplant list options and access to affordable air transport for those who are multi-listed for organ transplants in the U.S. With the additional goal of increasing the organ supply, Tayur also developed an inspiring nudge video in 2016 that improved organ donation rates and was highlighted by the White House.

By combining his expertise in supply chain management with his passion for health care innovation, Tayur's work is decreasing transplant wait times, increasing the number of transplantations and reducing organ discards — and thus improving quality of life and increasing the number of lives saved.

AND FOR THE ENTREPRENEURS WHO COMBINE SCIENTIFIC PROWESS WITH BUSINESS ACUMEN TO IMPROVE THE QUALITY OF LIFE FOR PEOPLE EVERYWHERE

LET'S JUST STOP
FOR A SECOND
TO APPRECIATE
THE FACT THAT

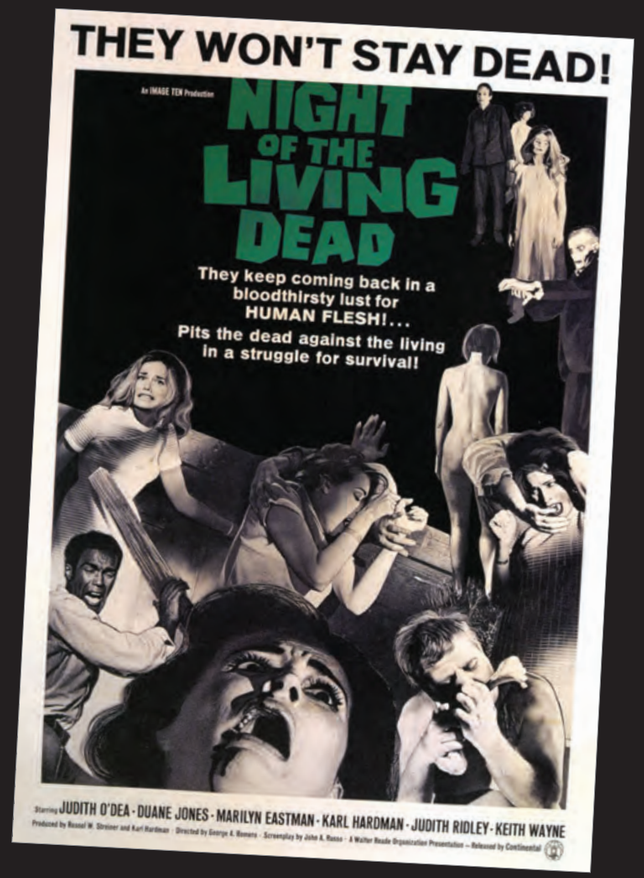
WI-FI WAS ESSENTIALLY INVENTED HERE.

Streaming TED Talks in your favorite cafe: brought to you by CMU Professor **Alex Hills**, who in 1993 founded the Wireless Andrew initiative—a campus-wide network that allowed computers to wirelessly connect to the internet.

AND FOR THE INITIATORS WHO TRANSMIT DATA THROUGH THIN AIR, TRANSFORMING AN EXTRAORDINARY VISION INTO A UNIVERSAL REALITY

In 1968, they rose from the dead.

Before that, they lived in the mind of CMU alumnus **George Romero**, who developed the movie that led to a nationwide obsession with zombies that continues to this day.



In 1990, he brought computer animation to life.

In 1990, **James Duesing**, director of CMU's Center for the Arts in Society, created one of the earliest examples of animation using a desktop computer. His work has spanned hand-drawn, 3-D and motion-capture projects. Duesing's animation frequently offers comical and eccentric reflections on human interactions and desires in realms poisoned by environmental disaster or cut off from nature.

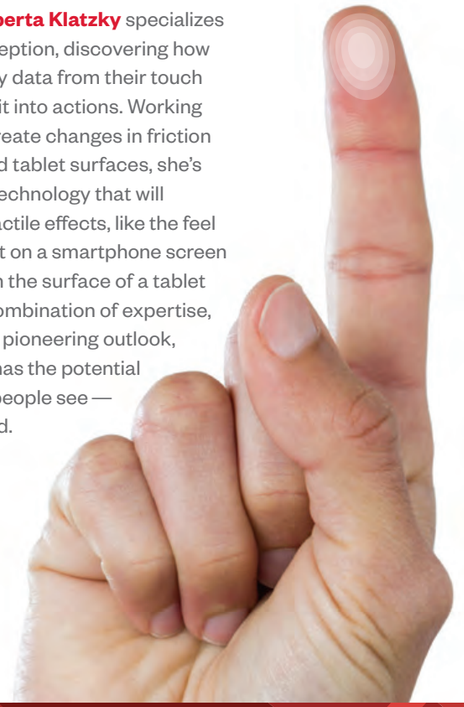
His work has been exhibited and broadcast all over the world in places like the Sundance Film Festival and the Museum of Modern Art, and he has received numerous awards and grants, including a regional Emmy Award from the National Academy of Television Arts and Sciences and an American Film Institute Independent Filmmaker Fellowship.

AND FOR THE TRAILBLAZERS WHOSE IMAGINATIONS GIVE LIFE TO MODERN CLASSICS AND FOR THE CONCEPTUALISTS WHO REIMAGINE HUMANITY

Inventors

Putting more touch in touchscreen.

CMU Professor **Roberta Klatzky** specializes in the study of perception, discovering how people take sensory data from their touch receptors and turn it into actions. Working with engineers to create changes in friction on glass phones and tablet surfaces, she's developing haptic technology that will produce different tactile effects, like the feel of a swatch of velvet on a smartphone screen or a raised graph on the surface of a tablet computer. With a combination of expertise, collaboration and a pioneering outlook, Klatzky's research has the potential to change the way people see — and feel — the world.



AND FOR THE INVENTORS WHO ALLOW MORE PEOPLE TO KNOW WHAT IT FEELS LIKE TO HAVE THE FUTURE AT THEIR FINGERTIPS

Infinite options.
One clear answer.

In order to make fuller use of the human, social and technological capabilities of professionals like managers, engineers and doctors, University Professor **Denise Rousseau** developed evidence-based management. This science-informed practice, based on a large body of social science and management research, is designed to help people make better-informed decisions that work. In the real world, small-business owners can decide which organizational structure allows them to grow the most, tech CEOs can decide which product has the most potential market value, and doctors can make better diagnoses and provide better treatment options to patients.

30 teams.
162 games each.
One schedule.

Before **Michael Trick**, dean at Carnegie Mellon Qatar, optimized the scheduling process of Major League Baseball, the entire schedule was made mostly by hand. Using his background in computational methods in optimization, Trick and his team were able to schedule an entire season at the speed of a fastball. MLB selected Trick's schedule back in 2004, and still uses his scheduling algorithms today.

This founder cultivates fields.

By the year 2040, there will be more people on the planet than there is food to feed them. That's why CMU scientist **George Kantor** is leading FarmView, a comprehensive initiative employing sensors, robotics and artificial intelligence. These technologies will improve plant-breeding and crop-management practices, and help identify and exploit high-yield, high-protein crops that succeed with minimal care in varying climates.

And these founders invent them.

Carnegie Mellon's **Engineering and Public Policy** program was a pioneer when it was created more than four decades ago, spurred by faculty from what are now the College of Engineering and Heinz College. Later joined by professors from the School of Computer Science, Mellon College of Science, Tepper School of Business, and Dietrich College of Humanities and Social Sciences, they recognized a need to rigorously examine — and prepare students to address — the profound societal repercussions of technology.

The department's faculty, students and alumni dedicate their work to studying technical and scientific issues that intersect with and inform public policy. They have played a central role in understanding and providing solutions for geopolitical concerns such as climate change, the health and environmental effects of our energy systems, and information and communication.

AND FOR THE TECHNOLOGISTS WHO FEED THE WORLD AND THE PIONEERS WHO ADDRESS HUMANITY'S MOST PRESSING CHALLENGES

BROADWAY'S BIGGEST DISTINCTION.

Bestowed on these founders.

René Auberjonois

College of Fine Arts, 1962
Best Actor, Supporting or Featured (Musical), *Coco* (1970)

Christian Borle

College of Fine Arts, 1995
Best Actor, Featured Role (Play), *Peter and the Starcatcher* (2012); Best Actor, Featured Role (Musical), *Something Rotten!* (2015)

Jamie deRoy

College of Fine Arts, 1967
Best Musical as Producer, *A Gentleman's Guide to Love and Murder* (2014); Best Play as Producer, *Vanya and Sonia and Masha and Spike* (2013); Best Revival (Play) as Producer, *The Norman Conquests* (2009)

Peggy Eisenhauer

College of Fine Arts, 1983
Lighting Design, *Lucky Guy* (2013), *Assassins* (2004), *Bring in 'da Noise, Bring in 'da Funk* (1996)

Katie Finneran

College of Fine Arts, 1989–1990
Best Actress, Featured Role (Musical), *Promises, Promises* (2010); Best Actress, Featured Role (Play), *Noises Off* (2002)

Jules Fisher

College of Fine Arts, 1960
Lighting Design, *Lucky Guy* (2013), *Assassins* (2004), *Bring in 'da Noise, Bring in 'da Funk* (1996), *Jelly's Last Jam* (1992), *The Will Rogers Follies* (1991), *Grand Hotel* (1990), *Dancin'* (1978), *Ulysses in Nighttown* (1974), *Pippin* (1973)

Sutton Foster

College of Fine Arts, 1992–1993
Best Actress (Musical), *Anything Goes* (2011), *Thoroughly Modern Millie* (2002)

Herb Gardner

College of Fine Arts, 1956
Best Play, *I'm Not Rappaport* (1986)

Renée Elise Goldsberry

College of Fine Arts, 1993
Best Actress, Featured Role (Musical), *Hamilton* (2016)

Cherry Jones

College of Fine Arts, 1978
Best Actress (Play), *Doubt* (2005), *The Heiress* (1995)

Pamela Winslow Kashani

College of Fine Arts, 1987
Best Musical as Producer, *Memphis* (2010)

John Arthur Kennedy

College of Fine Arts, 1936, 1966
Best Actor, Supporting or Featured (Dramatic), *Death of a Salesman* (1949)

Eugene Lee

College of Fine Arts, 1962
Scenic Designer, *Wicked* (2004), *Sweeney Todd* (1979), *Candide* (1974)

Judith Light

College of Fine Arts, 1970
Best Actress, Featured Role (Play), *The Assembled Parties* (2013), *Other Desert Cities* (2012)

Patina Miller

College of Fine Arts, 2006
Best Actress (Musical), *Pippin* (2013)

Roger Morgan

College of Fine Arts, 1961
Lighting Design, *The Crucifer of Blood* (1979)

Leslie Odom Jr.

College of Fine Arts, 2003
Best Actor (Musical), *Hamilton* (2016)

Martin Platt

College of Fine Arts, 1971
Best Play as Producer, *Vanya and Sonia and Masha and Spike* (2013)

Billy Porter

College of Fine Arts, 1991
Best Actor (Musical), *Kinky Boots* (2013)

Ellis Rabb

College of Fine Arts, 1953
Best Director (Play), *The Royal Family* (1976)

Lester Rawlins

College of Fine Arts, 1950
Best Actor, Featured Role (Play), *Da* (1978)

Ann Roth

College of Fine Arts, 1953
Best Costume Design (Play), *The Nance* (2013)

Mel Shapiro

College of Fine Arts, 1961
Best Book (Musical), *Two Gentlemen of Verona* (1972)

Sada Thompson

College of Fine Arts, 1949
Best Actress (Dramatic), *Twigs* (1972)

Tamara Tunie

College of Fine Arts, 1981
Best Musical as Producer, *Spring Awakening* (2007)

AND FOR THE ORIGINALS WHO USE THEIR CREATIVE TALENTS TO BRING PURE MAGIC TO THE STAGE AND ENTHRALL US WITH THEIR INGENUITY

Originally known as the "pound sign," the hashtag is now ubiquitous in social media, allowing people to tag, group and search posts by subject — a concept first proposed on Twitter in 2007 by CMU alumnus **Chris Messina**.

Tag, you're it.

One simple action online could lead to your identity being stolen. Tagging friends in a photo may seem harmless, but privacy expert and CMU Professor **Alessandro Acquisti** is proving otherwise. By combining social media with facial recognition software, public records and cloud computing, he demonstrated how easy it is to identify strangers, gain their personal information, predict their interests and sometimes even get access to sensitive identifiers such as Social Security numbers.

AND FOR THE NONCONFORMISTS WHO INSPIRE SOCIAL REVOLUTIONS AND THE GATEKEEPERS

WHO PROTECT OUR MOST VULNERABLE ASSETS

All drive, no driver.

University Professor and world-renowned roboticist **Red Whittaker** has been fueling his drive to develop autonomous modes of transportation since 1973. His creations have searched for fallen meteorites in the ice fields of Antarctica, ventured into the craters of active volcanoes in Alaska, cleaned up nuclear waste at Three Mile Island and won the $2 million DARPA Urban Challenge, a prestigious long-distance road race. For his next project, he's shooting for the moon, developing space robotics technology with the goal of taking payloads to our lunar neighbor and beyond.

AND FOR THE REVOLUTIONARIES WHO CONQUER UNKNOWN TERRAINS, OPENING UP NEW ROADS OF POSSIBILITY THAT SPAN THE ENTIRE UNIVERSE

With thousands of hours of video footage, it can be hard to find the most critical moments.

In the era of social media, where video is more prominent and abundant than ever before, CMU Professor **Jay Aronson** is finding more efficient ways to watch it all. To improve the way we monitor conflicts and human rights violations, the history faculty member is collaborating with colleagues in the School of Computer Science to harness powerful machine learning and computer vision-based techniques pioneered at Carnegie Mellon. The video analysis system they developed filters out irrelevant material and automatically tags videos that contain specific objects, actions, sounds or language that indicate war crimes, human rights violations and other atrocities. Other tools synchronize and geolocate video lacking metadata so that it can be used to reconstruct events over time and space.

Aronson and his colleagues are working with conflict-monitoring and human rights organizations around the world to implement these systems. The ultimate goal of this work is to make the documentation of human rights violations simpler and more convincing.

AND FOR THE ACTIVISTS WHO HARNESS THE POWER OF THE COLLECTIVE TO FIGHT FOR HUMAN RIGHTS FROM THOUSANDS OF MILES AWAY

A collaboration of more than 300 artists, designers, educators, scientists, choreographers, poets, fabricators, technologists, writers, scholars and musicians, the MoonArk is a sculpture containing hundreds of images, poems, music, nano objects and earthly samples that will be sent to the moon aboard an Astrobotic Lander.

Led by Professor **Mark Baskinger** and retired Professor **Lowry Burgess,** who previously curated the first art payload taken into space in 1989, the tiny museum of human history weighs in at just 8 ounces and is designed to last thousands of years.

An 8-inch structure that encapsulates our humanity.

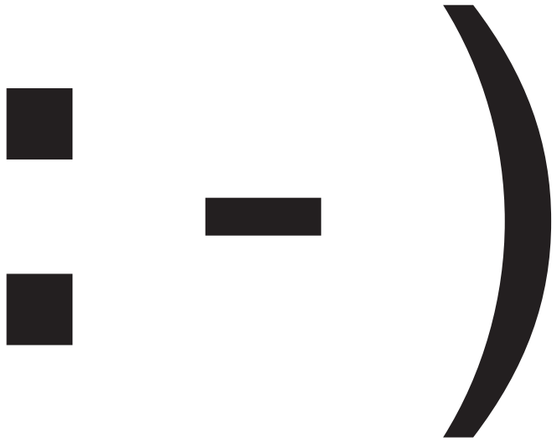
A chemical process that enhances our lives.

Thanks to Atom Transfer Radical Polymerization, cars get better gas mileage and paints are brighter than they were 20 years ago. Invented by University Professor **Krzysztof Matyjaszewski** in 1995, this chemical process revolutionized macromolecular engineering by enabling precise control over molecular architecture and function, resulting in better, smarter materials. ATRP has been used by companies worldwide to make many products that impact diverse fields, including appliances, automotive manufacturing and cosmetics.

AND FOR THE FUTURISTS WHO THINK LIGHT-YEARS AHEAD AND THE CHEMISTS WHOSE REACTIONS TOUCH OUR LIVES IN INNUMERABLE WAYS

Computer scientists can be pretty funny.

No really, that's not a joke. If it were, we might put a smiley-face emoticon after it—like the one CMU Professor **Scott Fahlman** invented to distinguish sarcastic "joke" posts from serious ones in his department's online message boards. It's been 35 years since that digital grin made its first appearance. From this small beginning evolved whole families of text-based emoticons and then, in 1999, the emoji used billions of times per day.



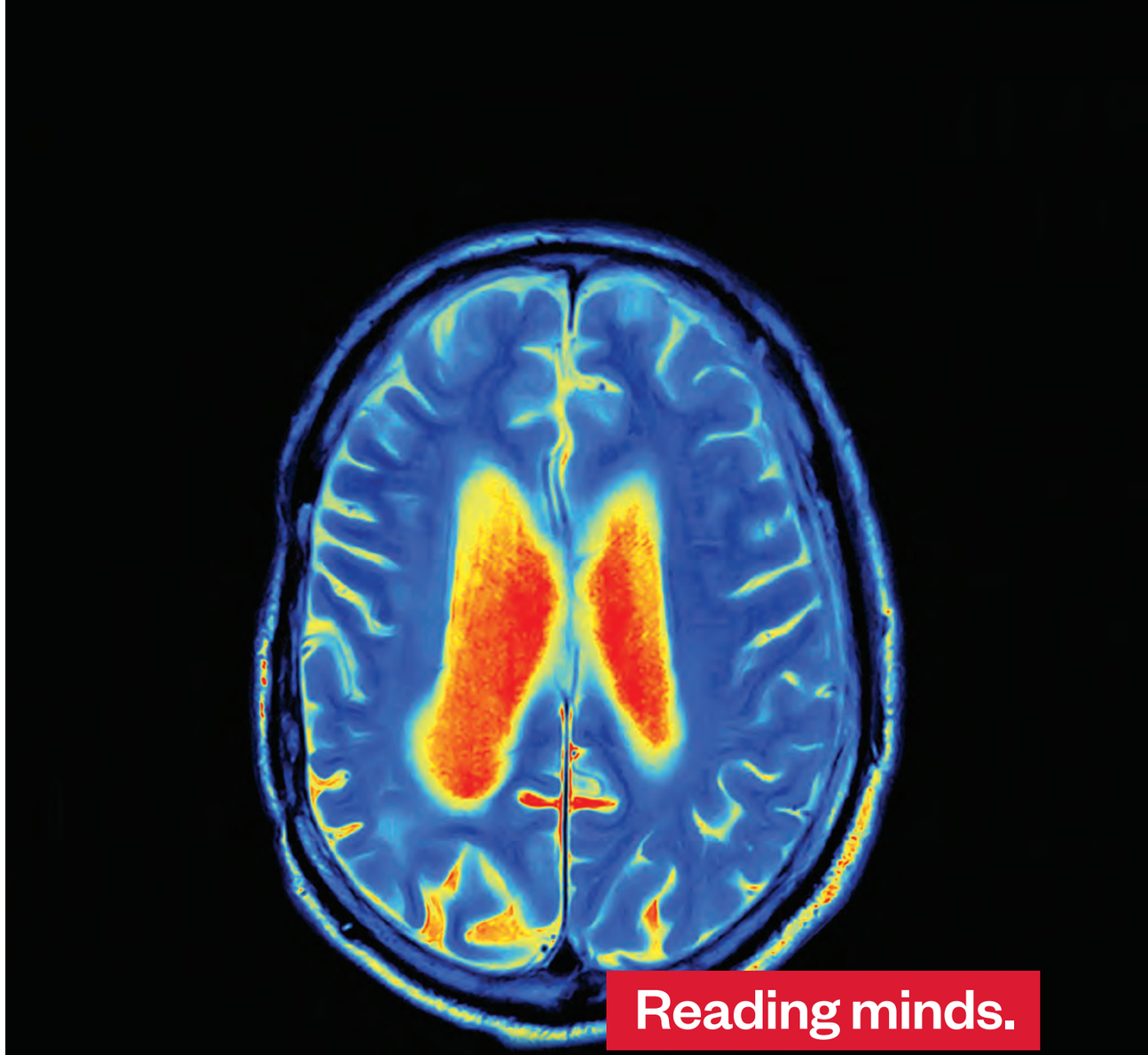
1982

2017

AND FOR THE TRENDSETTERS WHO CHANGE THE WAY WE COMMUNICATE AND GIVE RISE TO THE NEXT CULTURAL PHENOMENA

Studying crimes.

University Professor **Alfred Blumstein** has led a life of crime — specifically, understanding why people commit it and how likely they are to offend again. By reviewing existing knowledge on the frequency and duration at which someone commits crimes, Blumstein developed a framework for collecting information about individual criminal careers and their parameters, while also describing how this information can be used to refine the justice system. Known as one of the top researchers in criminology and operations research in 21st-century America, his work has reshaped the way we think about things like crime measurement, sentencing and prison populations, demographic trends, and drug-enforcement policy.



Reading minds.

"Mind reader" and University Professor **Marcel Just** is using new brain imaging techniques to identify the content of thoughts. By analyzing the patterns from an fMRI, Just is able to determine if someone is thinking of a familiar object, experiencing an emotion or reading a sentence. This method of brain imaging can be used for diagnosing psychiatric disorders by detecting alterations in thought patterns, and for enhancing the way individual scientific concepts come to be represented in a person's brain.

AND FOR THE INVESTIGATORS WHO DIG DEEP TO UNCOVER INFORMATION

AND THE ANALYSTS WHO GIVE US GLIMPSES OF THE INNER WORKINGS OF THE HUMAN MIND

THE HIGHEST ACCOLADE IN HOLLYWOOD.

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Earned by these founders.

Kiran Bhat

School of Computer Science, 2004
Technical Achievement, for the design and development of the ILM facial performance-capture solving system (2016)

Holly Hunter

College of Fine Arts, 1980
Best Actress in a Leading Role, *The Piano* (1993)

Drew Olbrich

School of Computer Science, 1992
Technical Achievement, for creating the Light system for computer graphics lighting at PDI/DreamWorks (2013)

Iain Matthews

School of Computer Science Adjunct Faculty
Scientific and Engineering, for the design, engineering and development of the FACETS facial performance capture and solving system at Weta Digital (2016)

Ann Roth

College of Fine Arts, 1953
Best Costume Design, *The English Patient* (1996)

Richard Shoup

College of Engineering, 1965, School of Computer Science, 1970
Scientific and Engineering, for pioneering efforts in the development of digital paint systems (1997)

Stephen Schwartz

College of Fine Arts, 1968
Best Music, Original Song, "When You Believe" from *The Prince of Egypt* (1998) and "Colors of the Wind" from *Pocahontas* (1995)

Best Music, Original Musical or Comedy Score, *Pocahontas* (1995)

AND FOR THE POWERHOUSES WHO WEAVE CAPTIVATING TALES AND EMBODY FASCINATING ROLES, CAPTURING OUR HEARTS AND ENCHANTING OUR MINDS

Saving lives.

The U.S. opioid epidemic is just the latest wave of harmful drug activity that concerns University Professor **Jonathan Caulkins.** As a public policy expert, he models markets, the efficacy of interventions and the effects of enforcement. In doing so, he has uncovered surprising pathways that lead to drug use, and has championed data-driven reforms that limit the abuse of both legal and illegal drugs. Knowing that no single change will end narcotics abuse, Caulkins instead works for common-sense approaches that reduce societal costs and emphasize helping people with treatments that work.

Skipping lines.

If you've signed up for TSA PreCheck, you know how amazing it feels to breeze through the security line and keep your shoes on. Also pretty amazing? A precursor to the PreCheck system was designed by a **Heinz College** student team in 2003.

AND FOR THE ADVOCATES WHO WORK TO REDUCE THE IMPACT OF DRUG ABUSE AND THE REFORMERS WHO MAKE TRAVEL MORE EFFICIENT FOR EVERYONE IN LINE

ARTIFICIAL INTELLIGENCE WITH REAL UNDERSTANDING.

For CMU researcher **Rita Singh**, artificial intelligence that simply understands the content of human speech isn't enough. Through her research, she is producing algorithms that allow computers to understand and respond to humans by gauging their persona, their intent, their background and their environment through voice alone, all with an acuity that surpasses that of the human brain. Because a person's voice is as unique to them as their fingerprint or DNA, researchers could potentially build a profile of any human on earth just by listening to an audio recording of their voice.

AND FOR THE PHENOMS WHO UNDERSTAND THE NEED FOR BETTER METHODS OF IDENTIFICATION AND INVENT THE METHODOLOGY TO MAKE IT HAPPEN

Microchip.

Macro impact.

In the early '90s, University Professor **José Moura** and then-Ph.D. student **Aleksandar Kavcic** observed that disk drives were getting smaller and smaller — but the amount of data being stored was only growing. With the chasm between size and storage needs ever expanding, they were concerned about the ability to accurately recover and successfully read stored bits of data. Together they developed technology that enabled chips to read data from high-speed, high-performance disk drives with as few errors as possible. From large servers to laptops, their patented design has been used in more than 3 billion computers.

AND FOR THE VANGUARDS WHO FIND A WAY TO PRESERVE ENORMOUS AMOUNTS OF DATA WITH A SINGLE TINY DEVICE

discoverers

3-D-printed human tissue. Made possible by a founder.

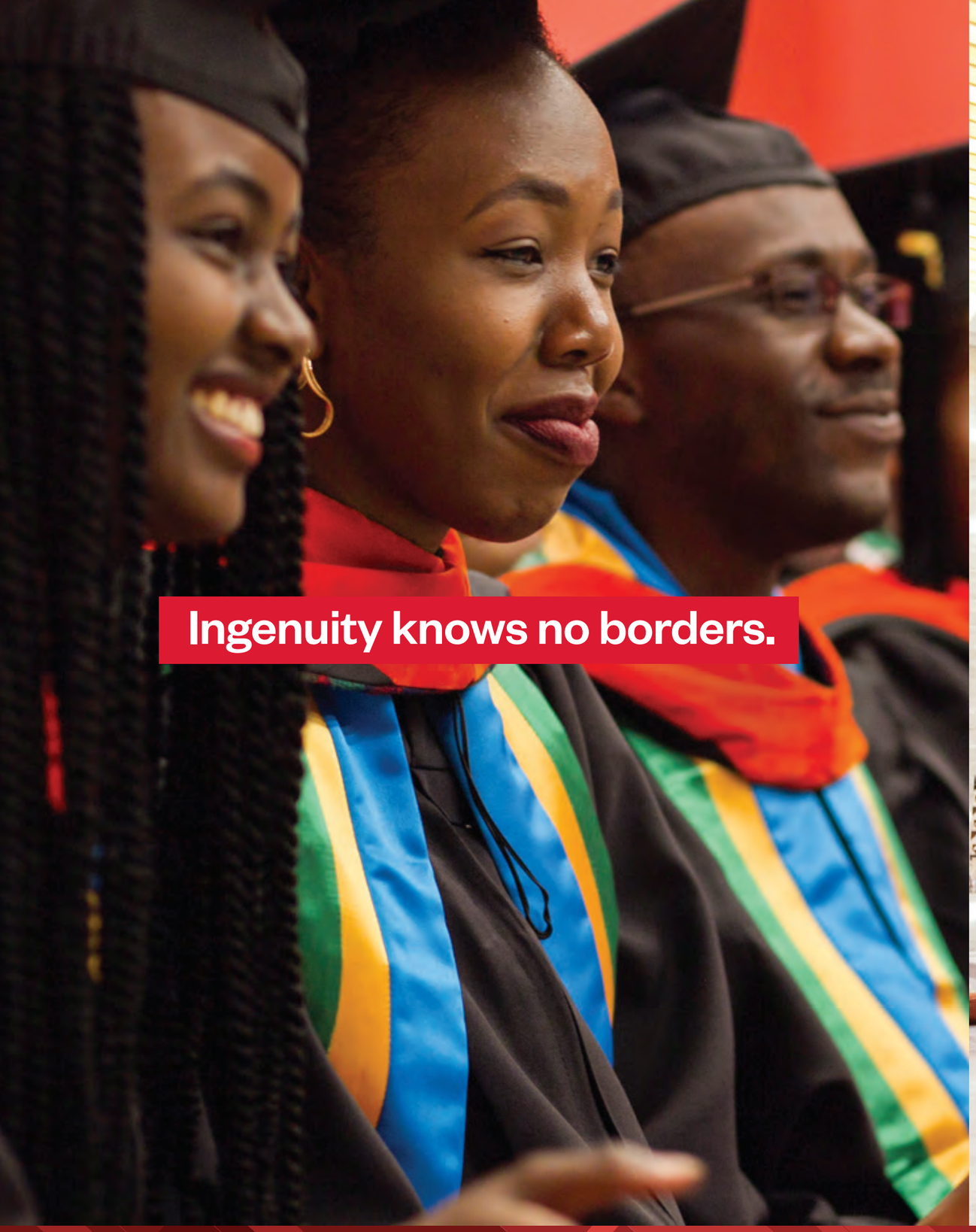
By hacking a 3-D printer to allow it to print soft biological materials, Professor **Adam Feinberg** and his team can create human tissue from scratch—a major feat in the world of medical research. Ultimately, his work could allow doctors to see how patients would react to different treatments without clinical trials or animal testing, to repair a heart without a transplant—and even to generate an entire human organ.

AND FOR THE DISCOVERERS WHO CEASELESSLY WORK TO CREATE MORE HUMANE MEDICAL TRIALS AND MORE EFFECTIVE TREATMENTS

Lighting the way for safer, cleaner hospitals.

Photocatalysts use light to generate hydrogen and suppress the growth of microorganisms on surfaces. But usually they either are highly toxic or don't perform well. Professors **Mohammad Islam, Paul Salvador** and **Greg Rohrer** solved this problem by separating the photocatalysis half-reactions into different channels using nanomaterials, resulting in increased performance in visible light. Their progress could give hospitals a safer, more effective way to disinfect surfaces and even kill drug-resistant bacteria by using photocatalysts and visible light instead of ultraviolet light.

AND FOR THE EXPERTS WHOSE REACTIONS SET NEW PERFORMANCE STANDARDS AND HELP KEEP HOSPITAL PATIENTS HEALTHY



Ingenuity knows no borders.

AND FOR THE VOYAGERS WHO CROSS OCEANS AND CONTINENTS TO BRING OPPORTUNITIES

Recognizing the need to transform the educational landscape worldwide, Carnegie Mellon opened its campus in **Qatar** in 2004, and became the first U.S. research university with an in-country presence in Africa with the opening of its **Rwanda** campus in 2012. Today, CMU Qatar proudly boasts 400 students from more than 40 countries, and CMU Africa has awarded master's degrees in information technology and electrical and computer engineering to more than 100 graduates.

TO UNDERSERVED POPULATIONS

THE MOST IMPRESSIVE ACHIEVEMENT IN COMPUTER SCIENCE.

© 2012 Association for Computing Machinery.

Attained by these founders.

Shafi Goldwasser
Mellon College of Science, 1979
2012

Leslie Gabriel Valiant
School of Computer Science Former Faculty
2010

Edmund Clarke
School of Computer Science/ College of Engineering Faculty
2007

Manuel Blum
School of Computer Science Faculty
1995

Edward Feigenbaum
College of Engineering, 1956; Tepper School, 1960
1994

Raj Reddy
School of Computer Science Faculty
1994

Ivan Sutherland
College of Engineering, 1959
1988

Robert Floyd
School of Computer Science Former Faculty
1978

Dana Scott
Dietrich College/Mellon College of Science/School of Computer Science Emeritus Faculty
1976

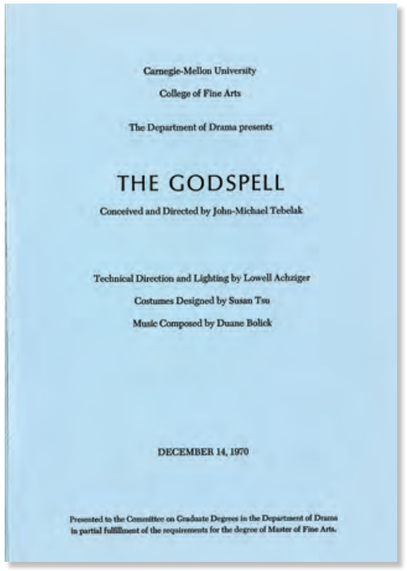
Allen Newell
School of Computer Science Former Faculty
1975

Herbert Simon
Dietrich College/ School of Computer Science/ Tepper School Former Faculty
1975

Alan Perlis
Mellon College of Science, 1942; School of Computer Science Former Faculty
1966 (the first ever awarded)

AND FOR THE WORLD-CHANGERS WHOSE IMPORTANT BREAKTHROUGHS MAKE LASTING ADVANCEMENTS IN THEIR FIELDS

They wrote the masterpiece.



What began as **John-Michael Tebelak's** master's thesis project became an international sensation, appearing in theaters from Broadway to Brazil. *Godspell*, hailed for its unique take on the last days of Jesus Christ, became a collaboration with fellow CMU alumnus **Stephen Schwartz**—and its first production was right here at Carnegie Mellon in 1970.

creators

Susan Tsu, costume designer, CMU alumna and University Professor, is a veritable superstar in the world of theater, creating wearable works of art that send a powerful message and capture the true essence of a character. While her name might not appear in marquee lights, it's well recognized in the industry as synonymous with imagination and innovation. Tsu's designs have appeared on stages across the globe, but her first major pieces—and arguably her most famous—were the hippie-clown costumes she designed for the original production of *Godspell* at Carnegie Mellon's Studio Theatre.

She dressed the parts.

AND FOR THE MASTERMINDS WHO DREAM UP TRANSFORMATIVE WORKS OF ART AND THE CREATORS WHO TRANSFORM THE WAY WE SEE THEM

Girl Processes Daily Ration of Early Rice
Copyright Edda L. Fields-Black

Once unmourned and unmarked. Now honored and celebrated.

A tribute to those enslaved and brutalized on rice plantations in the Lowcountry of South Carolina and Georgia, Professor **Edda L. Fields-Black's** *Requiem for Rice* was selected by Carnegie Mellon's Center for the Arts in Society Performance Initiative for 2015–2017. This modern take on a classic requiem features a full symphony orchestra and choir, as well as West African dance, drumming and singing, and African-American spirituals. Fields-Black wanted to recognize the exploited laborers who helped launch and sustain, yet never profited from, the commercial rice industry of the South, and to create something beautiful out of an otherwise painful history of enslavement.

Requiem ends in a celebration of the lives, ingenuity and sacrifices of African ancestors, reclaiming history and culture for future generations and reconciling peoples of African, African-American and European descent.

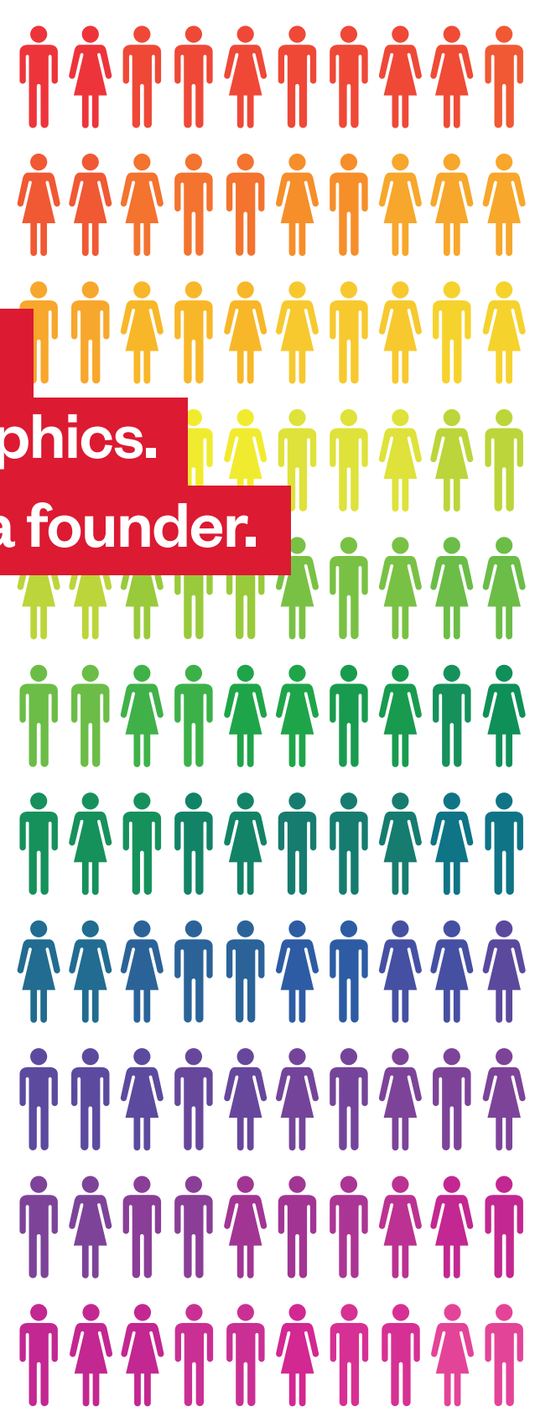
AND FOR THE STORYTELLERS WHO USE ART, MUSIC AND LANGUAGE TO SHED LIGHT ON DIFFERENT PERSPECTIVES AND IGNITE SOCIETAL CHANGE

Pipes are most definitely our bag.

Our founders Andrew Carnegie and Andrew and Richard Mellon shared an inventive mindset and a Scottish heritage, and we honored both by creating the world's first bagpipe performance majors. The undergraduate major was started in 1991 by world-renowned piper **James McIntosh MBE**, and the master's degree was launched in 2011 by current Director of Piping **Andrew Carlisle**.

More inclusive and accurate demographics. Brought to you by a founder.

CMU Professor **Lowell Taylor** was the co-author of the first paper studying the gay and lesbian population to ever appear in the flagship journal *Demography*. By demonstrating how data from the U.S. Census can be used to study same-sex couples, he helped launch the rapid growth of a new subfield of demographic studies that assists social scientists and is used in making better-informed public policy.



AND FOR THE VIRTUOSOS WHO MAKE MUSIC THEIR LIFE'S CALLING AND THE RESEARCHERS WHO CALL FOR BETTER PUBLIC POLICY

Our 21st-century society faces a host of complex problems, including inequality, climate change and forced migration, among many others. School of Design Professor and Head **Terry Irwin** and her colleagues have created a new field of research, practice and study—Transition Design—that is aimed at helping societies transition toward more sustainable futures. Its goal is not modest: the reconception of entire lifestyles to embrace Cosmopolitan Localism, which is more place-based and convivial, yet sophisticated in its global awareness and exchange of technology.

She's solving world problems.

Yours.

He's helping you solve yours.

Professor **Po-Shen Loh** is a math evangelist, for whom math education is a creative endeavor. As the founder of Expii, a free personalized learning platform, he is transforming the way people learn math: focusing on engagement and personal challenge rather than standardized achievement.

His algorithms match learners with questions and explanations at their level, informed by his real-life experience as coach of the United States International Mathematical Olympiad team, which placed first out of more than 100 countries in back-to-back years. Loh is determined to change the way society views math—and he's achieving this vision one problem at a time.

AND FOR THE GAME-CHANGERS WHO SET THEIR SIGHTS ON A SUSTAINABLE FUTURE AND THE EDUCATORS WHO APPROACH LEARNING WITH INFECTIOUS ENTHUSIASM

idealists

More power to you.

A.I.-powered robotic assistants aren't just a futuristic fantasy. Thanks to CMU Professor **Henny Admoni,** intelligent, autonomous robots can help people live richer lives. Her robots help people with disabilities complete complex daily tasks independently. By developing algorithms grounded in human behavior research, she created robots that are able to detect, interpret and respond to verbal and nonverbal communication, improving the way assistive robots and humans interact. These robots include home assistants, educational tutors and therapy tools for people with social deficits.

More empowerment to her.

CMU Professor **Linda Babcock** focuses her research on finding out what factors hold women back from asking for what they want. Her book *Women Don't Ask: Negotiation and the Gender Divide*, recognized by *Fortune* magazine as one of the 75 smartest business books of all time, empowered women to speak up in the workplace and inspired the first Girl Scout badge for negotiation.

AND FOR THE IDEALISTS WHO ARE ALWAYS WILLING TO LEND A [ROBOTIC] HAND AND THE PARAGONS WHO AREN'T AFRAID TO RAISE THEIRS

MASTERING THE LEARNING CURVE.

Just like people, organizations have learning curves that affect their productivity. Perhaps no one understands this better than CMU Professor **Linda Argote**, who literally wrote the book on the subject. Argote's book *Organizational Learning: Creating, Retaining and Transferring Knowledge* set the standard for research and analysis in the field, and is considered to be the foremost publication on the topic today.

AND FOR THE THEORISTS WHO SHAPE OUR APPROACH TO BUSINESS AND ENABLE US TO OPERATE MORE PRODUCTIVELY

“Can you hold the elevator door, please?”

Makers

It’s common to hear this request from a colleague or fellow hotel guest. At Carnegie Mellon, you might hear it from a robot. CoBots, developed by University Professor **Manuela Veloso**, are robots that use symbiotic autonomy, which makes them aware of their perceptual, physical and reasoning limitations and allows them to proactively ask for help from humans. They can be found regularly navigating our hallways — so don’t be startled if one stops and asks you for help getting on the elevator.

AND FOR THE MAKERS WHOSE COLLABORATIVE SPIRIT REDEFINES HOW WE INTERACT WITH TECHNOLOGY, TAKING AWARENESS TO A WHOLE NEW LEVEL

TELEVISION'S TOP HONOR.

Awarded to these founders.

Alana Billingsley

College of Fine Arts, 2004
Primetime Emmy© for Outstanding Art Direction for Variety or Nonfiction Programming, *The 54th Annual Grammy Awards* (2012)

Steven Bochco

College of Fine Arts, 1966
Primetime Emmys for Outstanding Drama Series, *NYPD Blue* (1995), *L.A. Law* (1987, 1989), *Hill Street Blues* (1981, 1982, 1983, 1984); Outstanding Writing for a Drama Series, *L.A. Law* (1987), *Hill Street Blues* (1981, 1982)

Nanrose Buchman

College of Fine Arts, 1976
Primetime Emmy for Outstanding Costumes for a Series, *Fame* (1987)

Casey Childs

College of Fine Arts, 1978, 1980
Daytime Emmys for Outstanding Drama Series Directing Team, *All My Children* (2003), *Another World* (1992)

John Conboy

College of Fine Arts, 1956
Daytime Emmys for Outstanding Drama Series, *Santa Barbara* (1990), *The Young and the Restless* (1975, 1983); Outstanding Drama Special, *The ABC Afternoon Playbreak* for Episode "The Other Woman" (1974)

James Cromwell

College of Fine Arts, 1964
Primetime Emmy for Outstanding Supporting Actor in a Miniseries or Movie, *American Horror Story: Asylum* (2013)

Ted Danson

College of Fine Arts, 1972
Primetime Emmys for Outstanding Lead Actor in a Comedy Series, *Cheers* (1990, 1993)

Bob Finkel

College of Fine Arts, 1940
Primetime Emmys for Outstanding Variety Music or Comedy Series, *The Andy Williams Show* (1966, 1967)

James Frawley

College of Fine Arts, 1959
Primetime Emmy for Outstanding Directing for a Comedy Series, *The Monkees* (1967)

Will Gossett

College of Fine Arts, 2015
Primetime Emmy for Outstanding Lighting Design/ Lighting Direction for a Variety Special, *Grease: Live* (2016)

Christopher Goutman

College of Fine Arts, 1976
Daytime Emmys for Outstanding Direction for a Drama Series, *One Life to Live* (2014), *As the World Turns* (2007), *All My Children* (1995); Outstanding Drama Series, *As the World Turns* (2001, 2003)

Mariette Hartley

College of Fine Arts, 1965
Primetime Emmy for Outstanding Lead Actress in a Drama Series, *The Incredible Hulk* (1979)

Brian Hemesath

College of Fine Arts, 1997
Daytime Emmys for Outstanding Costume Design/ Styling, *Sesame Street* (2011, 2015)

Michael Hissrich

College of Fine Arts, 1988
Primetime Emmys for Outstanding Drama Series, *The West Wing* (2001, 2002); Outstanding Special Class Program, *The West Wing: Documentary Special* (2002)

Holly Hunter

College of Fine Arts, 1980
Primetime Emmys for Outstanding Lead Actress in a Miniseries or a Special, *The Positively True Adventures of the Alleged Texas Cheerleader-Murdering Mom* (1993), *Roe vs. Wade* (1989)

Douglas Huszti

College of Fine Arts, 1994
Primetime Emmy for Outstanding Art Direction for a Single-Camera Series, *Boardwalk Empire* (2011)

Romain Johnston

College of Fine Arts, 1951
Primetime Emmys for Outstanding Art Direction for Variety or Nonfiction Programming, *The Sentry Collection Presents Ben Vereen: His Roots* (1978), *The Mac Davis Show* (1977)

Cherry Jones

College of Fine Arts, 1978
Primetime Emmy for Outstanding Supporting Actress in a Drama Series, *24* (2009)

Jack Klugman

College of Fine Arts, 1948
Primetime Emmys for Outstanding Continued Performance by an Actor in a Leading Role in a Comedy Series, *The Odd Couple* (1971, 1973); Outstanding Single Performance by an Actor in a Leading Role, *The Defenders* (1964)

Suttirat Anne Larlarb

College of Fine Arts, Past Faculty
Primetime Emmy for Outstanding Art Direction for Variety or Nonfiction Programming, *London 2012 Olympic Games Opening Ceremony* (2013)

Eugene Lee

College of Fine Arts, 1962
Primetime Emmys for Outstanding Production Design for a Variety, Nonfiction, Reality or Reality-Competition Programming, *Saturday Night Live* with host Alec Baldwin (2017); Outstanding Art Direction for Variety or Nonfiction Programming, *Saturday Night Live* with host Justin Timberlake/host Martin Short/host Ben Affleck (2013)

Jared Leese

College of Fine Arts, 1995
Daytime Emmys for Outstanding Costume Design/ Styling, *Sesame Street* (2011, 2015)

Alfred Lehman

College of Fine Arts, 1949, 1950
Primetime Emmy for Outstanding Costumes for a Series, *Murder, She Wrote* (1986)

Andrew Leitch

College of Fine Arts, 2012
Primetime Emmy for Outstanding Production Design for a Narrative Program, Half-Hour or Less, *Veep* (2017)

Judith Light

College of Fine Arts, 1970
Daytime Emmys for Outstanding Actress in a Drama Series, *One Life to Live* (1980, 1981)

AND FOR THE ARTISTS WHO ENRAPTURE US WITH THEIR GRIPPING PERFORMANCES ON SCREENS ALL OVER THE COUNTRY

Kenneth Love

College of Fine Arts, 1976
News and Documentary Emmy for Outstanding Individual Achievement in a Craft – Sound, *Realm of the Alligator* (1987)

Marilyn Lowey

College of Fine Arts, 1976
Primetime Emmy for Outstanding Lighting Direction (Electronic) for a Miniseries or Special, *Neil Diamond… Hello Again* (1986)

Mark Malmberg

College of Fine Arts, 1979
News and Documentary Emmy for Outstanding Individual Achievement in Design, *MSNBC ID Package* (1996); Primetime Emmy for Outstanding Main Title Design, *MTV Liquid TV* (1992)

Sonia Manzano

College of Fine Arts, 1972
Daytime Emmys for Outstanding Writing in a Children's Series, *Sesame Street* (1984, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1994, 1995, 1998, 1999, 2001, 2002, 2003)

Nancy Marchand

College of Fine Arts, 1949
Primetime Emmys for Outstanding Supporting Actress in a Drama Series, *Lou Grant* (1980, 1981, 1982); Outstanding Continuing Performance by a Supporting Actress in a Drama Series, *Lou Grant* (1978)

Rob Marshall

College of Fine Arts, 1982
Primetime Emmys for Outstanding Choreography, *Tony Bennett: An American Classic* (2007), *Annie* (2002); Outstanding Directing for a Variety Special, *Tony Bennett: An American Classic* (2007); Outstanding Variety, Music or Comedy Special, *Tony Bennett: An American Classic* (2007)

Noel Maxam

College of Fine Arts, 1990
Daytime Emmys for Outstanding Drama Series Directing Team, *The Young and the Restless* (1998, 1999, 2001, 2002)

John McDaniel

College of Fine Arts, 1983
Daytime Emmys for Outstanding Talk Show, *The Rosie O'Donnell Show* (2001, 2002)

John Ford Noonan

College of Fine Arts, 1966
Primetime Emmy for Outstanding Writing for a Drama Series, *St. Elsewhere* (1984)

Daniel Orlandi

College of Fine Arts, 1976
Primetime Emmy for Outstanding Costumes for a Variety Program or Special, *The Magic of David Copperfield XI: The Explosive Encounter* (1989)

Jill Farren Phelps

College of Fine Arts, 1972
Daytime Emmys for Outstanding Drama Series, *The Young and the Restless* (2014, 2015), *General Hospital* (2005, 2006, 2008, 2012), *Santa Barbara* (1988, 1989, 1990); Outstanding Achievement in Design Excellence for a Drama Series, *General Hospital* (1982); Outstanding Special Class Special, *The Young and the Restless: Tribute to Jeanne Cooper* (2014)

Michael Pressman

College of Fine Arts, 1972
Primetime Emmys for Outstanding Drama Series, *Picket Fences* (1993, 1994)

John Shaffner

College of Fine Arts, 1976
Primetime Emmys for Outstanding Art Direction for a Multi-Camera Series, *George Lopez* (2005); Outstanding Art Direction for Variety or Nonfiction Programming, *The Magic of David Copperfield XV: Fires of Passion* (1993), *The Magic of David Copperfield XIV: Flying – Live the Dream* (1992), *The Magic of David Copperfield XIII: Mystery on the Orient Express* (1991); Daytime Emmys for Outstanding Achievement in Art Direction/Set Decoration/Scenic Design, *Ellen: The Ellen DeGeneres Show* (2004, 2007)

Richard Shoup

College of Engineering, 1965
School of Computer Science 1970
Technical and Engineering Emmy for Outstanding Achievement, Engineering Development, concept and development of the first electronics graphics creative system (1983)

Gary Smith

College of Fine Arts, 1956
Primetime Emmys for Outstanding Variety, Music or Comedy Special, *The 51st Annual Tony Awards* (1998), *Barbra: The Concert* (1995), *Baryshnikov on Broadway* (1980), *Steve & Eydie Celebrate Irving Berlin* (1979), *Bette Midler: Ol' Red Hair Is Back* (1978), *Singer Presents Burt Bacharach* (1971); Outstanding Art Direction for a Series, *Perry Como's Kraft Music Hall* (1962); News and Documentary Emmy for Outstanding News and Documentary Program Achievement – Programs and Segments, *ABC 2000: The Millennium* (2000)

Joe Stewart

College of Fine Arts, 1977
Primetime Emmys for Outstanding Art Direction for a Variety or Nonfiction Programming, *The Magic of David Copperfield XV: Fires of Passion* (1993), *The Magic of David Copperfield XIV: Flying – Live the Dream* (1992), *The Magic of David Copperfield XIII: Mystery on the Orient Express* (1991); Daytime Emmys for Outstanding Achievement in Art Direction/Set Decoration/Scenic Design, *Ellen: The Ellen DeGeneres Show* (2004, 2007)

Brian Stonestreet

College of Fine Arts, 1988
Primetime Emmys for Outstanding Art Direction for Variety or Nonfiction Programming, *The 54th Annual Grammy Awards* (2012), *The 47th Annual Grammy Awards* (2005), *The 42nd Annual Grammy Awards* (2000)

Scott Storey

College of Fine Arts, 1985
Primetime Emmy for Outstanding Art Direction for Variety, Music or Nonfiction Programming, *2008 MTV Video Music Awards* (2009)

Chikako Suzuki

College of Fine Arts, 2004
Primetime Emmy for Outstanding Art Direction for Contemporary Program, Half-Hour or Less, *House of Lies* (2014)

Ryan Tanker

College of Fine Arts, 2010
Primetime Emmy for Outstanding Lighting Design/Lighting Direction for a Variety Special, *Grease: Live* (2016)

Jack Taylor

College of Fine Arts, 1973
Primetime Emmy for Outstanding Art Direction for a Miniseries or Movie, *I'll Be Home for Christmas* (1989)

Bruce Weitz

College of Fine Arts, 1966
Primetime Emmy for Outstanding Supporting Actor in a Drama Series, *Hill Street Blues* (1984)

Ken & Mitzie Welch

College of Fine Arts, 1947 and 1954
Primetime Emmys for Outstanding Original Music and Lyrics, *Linda in Wonderland* (1981), *The Sentry Collection Presents Ben Vereen: His Roots* (1978), *The Carol Burnett Show* (1976); Outstanding Achievement in Music Direction of a Variety, Musical or Dramatic Program, *Barbra Streisand…And Other Musical Instruments* (1974), Musician of the Year, *Barbra Streisand…And Other Musical Instruments* (1974)

John Wells

College of Fine Arts, 1979
Primetime Emmys for Outstanding Drama Series, *The West Wing* (2000, 2001, 2002, 2003), *ER* (1996); Outstanding Special Class Program, *The West Wing Documentary Special* (2002)

Connie Wexler

College of Fine Arts, 1953
Daytime Emmy for Outstanding Individual Achievement in Daytime Programming, *Search for Tomorrow* (1979)

Bud Yorkin

College of Engineering, 1948
Primetime Emmys for Outstanding Directorial Achievement in Comedy, *The Jack Benny Program* (1960); Best Direction for a Single Musical or Variety Program, *An Evening with Fred Astaire* (1959); Best Writing for a Single Musical or Variety Program, *An Evening with Fred Astaire* (1959)

AND THE ARTISANS WHO FASCINATE US WITH THEIR MASTERY OF CRAFT

CMU Professor **Tiziana Di Matteo** is going boldly where no person has gone before—or at least allowing us to visualize what it would look like if she did. Di Matteo was the first to show where the giant black holes at the heart of every galaxy came from, using computer models of the universe. Through her collaborative team's massive visualizations of the cosmos using CMU's GigaPan technology, she's uncovering the mysteries of space and getting closer to understanding the origins of the universe.

AND FOR THE ADVENTURERS WHO NAVIGATE THE DARKNESS OF SPACE TO SEE WHERE WE CAME FROM AND INFORM WHERE WE'RE GOING.

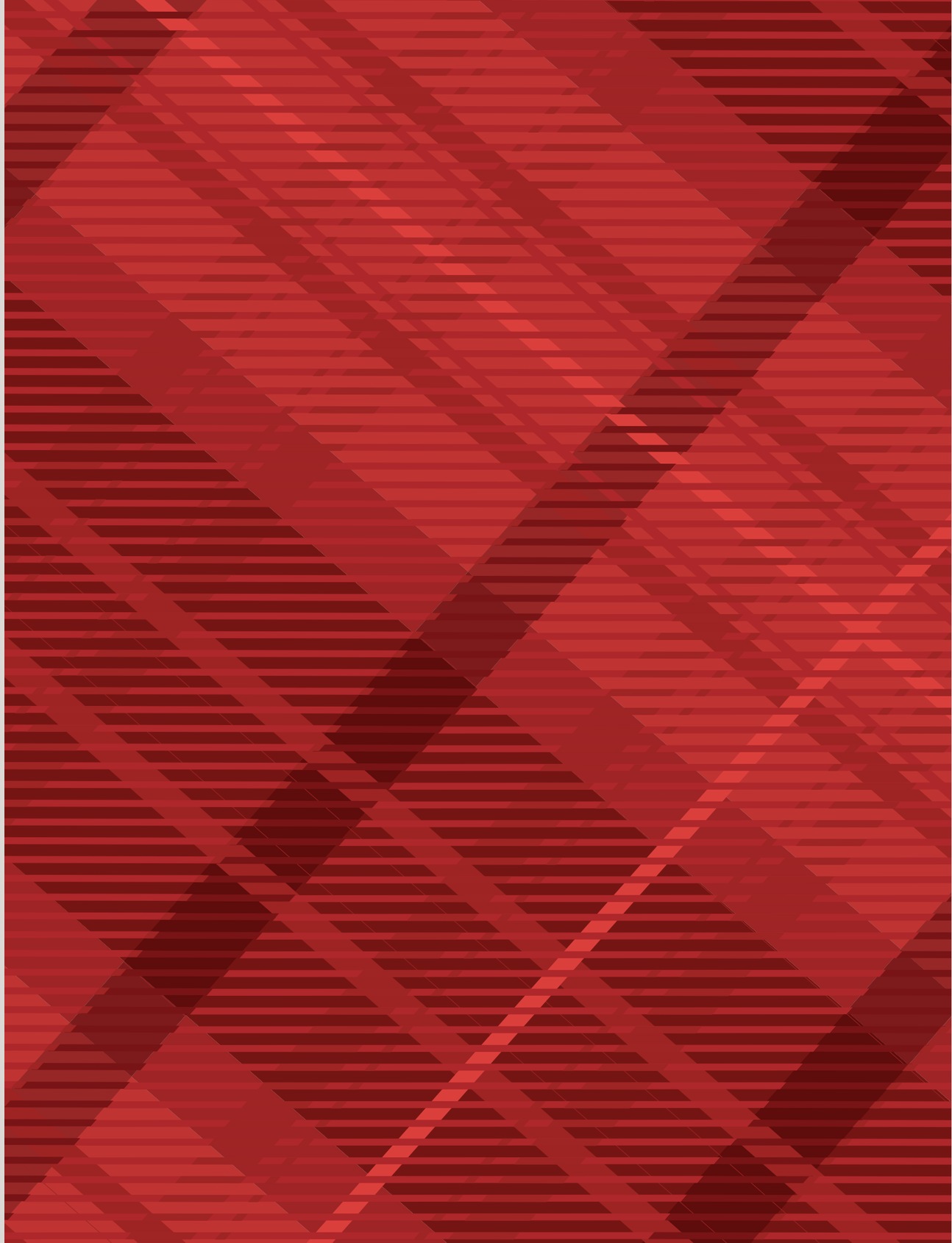
Today we celebrate our founders, who have accelerated progress over the last 50 years. Who have revolutionized our society with their vision. Who have transformed our daily lives with their innovations.

Their achievements are just the start.

With our eyes on the future, we eagerly await every new founder. Every person striving for the next great idea. Every collaboration that leads to greater advancements.

At Carnegie Mellon University, we boldly turn to the next pressing global challenge—knowing that our greatest impact is yet to come.

This is for the founders.
This is for our future.



Carnegie Mellon University

2017

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