

# Classnotes

## 1960s

**Jerry C. Wilkinson E'67**, his wife, Beverly, and their family have been recognized for their lifetime philanthropic and service contributions with the naming of Duke's newly opened engineering building as the Wilkinson Building.

Jerry Wilkinson, a 1967 electrical engineering graduate and founder of the Wilkinson Companies, and Beverly Wilkinson have been volunteers and donors to Duke's Pratt School of

interdisciplinary research neighborhoods focused on solving challenges related to computing and AI, the environment and human health.

To learn more about the Wilkinson Building and its naming, visit [pratt.duke.edu/about/news/dukes-new-engineering-building-named-honor-wilkinson-family](http://pratt.duke.edu/about/news/dukes-new-engineering-building-named-honor-wilkinson-family).

A past chair of the Pratt School of Engineering Board of Visitors, Jerry Wilkinson received the Duke Engineering

*Wilkinson Brammer '00; Bev Wilkinson P'98, P'00, P'03; Jerry Wilkinson BSEE'67, P'98, P'00, P'03; and Hilary Wilkinson Bayer '03*

## 1990s

**Valecia D. Maclin E'92** has been named to the CMMC-AB, Software Assurance Forum for Excellence in Code (SAFECode) to support the Department of Defense's new Cybersecurity Framework.

## 2000s

**Christine N. Armstrong E'06**, assistant district bridge engineer, VDOT, was named a "Top 40 Under 40."

**Lisa Burton O'Toole E'07**, a graduate of the Thomas Lord Department of Mechanical Engineering and Materials Science, will receive ASME's Kate Gleason Award, honoring women entrepreneurs who make a significant contribution to the engineering community.

As a mechanical engineer, entrepreneur, teacher and mentor to young women, O'Toole is a powerful advocate for innovative women and proudly demonstrates the qualities of Kate Gleason, who joined ASME as its first female member in 1918.

Since her graduation from Duke, O'Toole received her MS and PhD from the Massachusetts Institute of Technology. She serves as executive director of HearstLab, where she evaluates and invests in women-led startups in media, data and technology.

O'Toole was an active ASME student member while an undergraduate at Duke University, receiving the Outstanding Member at the Regional Student Conference in 2005 and ASME academic scholarships for her excellence as an

engineering student in 2005, 2006 and 2007.

## 2010s

**Andrew G. Mang E'12**, a GCSP Scholar and 2012 Duke graduate with a degree in mechanical engineering and economics, and **Rachael E. Lau E'20**, a Duke CEE graduate and GCSP scholar who is passionate about disaster response and using engineering to improve social well-being, were instrumental in launching a call-to-action by the National Academy of Engineering in April 2020 looking for solutions to the COVID-19 pandemic.

With its Call to Action, the NAE — the most prestigious engineering organization in the country — seeks to create a "virtual incubator of ideas," where a diverse range of engineers can come together to brainstorm ways that engineering could be used to propose and provide solutions to problems that have arisen due to this pandemic. For more information, visit [www.nae.edu/230399/National-Academy-of-Engineering-Announces-Engineering-Call-to-Action-on-COVID19](http://www.nae.edu/230399/National-Academy-of-Engineering-Announces-Engineering-Call-to-Action-on-COVID19).

**Mona Dai E'15** is using data to identify unsafe drinking water.

**Alison E. Bergmann X'18** was awarded the Society of Women Engineers New Emerging Leader in Technology and Engineering Award this year. There were 15 people in the 40,000-member SWE organization that received this honor.

**Ivonna N. Dumanyan E'18** and Gabrielle Levac T'14 started Fathom AI, a company that works with fitness providers to capture user bio data and uses analytics and machine learning to create personalized workouts and recovery plans. ■



Engineering for decades. Their most recent contribution, a cornerstone gift to the Building for the Future of Duke Engineering campaign, will fund the innovative research and educational initiatives that will take place within the new \$115 million engineering building.

In addition to state-of-the-art design labs and active-learning classrooms, the building features a Center for Engineering Entrepreneurship, a Center for Innovation, a Learning Commons and a 200-seat auditorium, expanding Duke Engineering's current student education and programming space by 50 percent.

Located at the nexus of Engineering, Medicine and Arts & Sciences, the Wilkinson Building will also house three

Distinguished Service Award in 1997 and the Duke Alumni Association's Charles A. Duke Award in 2012.

He and Beverly Wilkinson have a long history of philanthropy to Duke, establishing the Beverly A. and Jerry C. Wilkinson Scholarship, Myrtle Coker Wilkinson Scholarship, and Wilkinson Family Fellowship, as well as naming the Jerry C. Wilkinson E'67 Laboratory and The Robert Gordon Wilkinson Center for Engineering Management.

The Wilkinsons have three daughters, all Duke alumnae, and eight grandchildren. They split their time between Atlanta, Georgia and Amelia Island, Florida.

*Heather Wilkinson Deguire '98; Hayley*

## Duke Engineering Faculty



**Rhett T. George, Jr. E'55, 87**, assistant professor emeritus of electrical and computer engineering, passed away on December 14, 2020. He was born in Columbia, South Carolina to the late Rhett Truesdale George, Sr. and Gladys Doughty George. George earned his undergraduate degree in electrical engineering from

Duke University in 1955 and his PhD from the University of Florida in 1965.

George returned to join the faculty of the then-named Department of Electrical Engineering in 1959. He ultimately served on the department's faculty for 50 years, including a five-year term as assistant dean from 1972-77, until his retirement in 2009. He also served on the Engineering Alumni Council from 1995-1997.

He was a member of McMannen United Methodist Church and was also involved in the Red Cross and the United States Power Squadron. His most passionate hobbies included trains and amateur radio, his radio sign being KE4HIH. A dedicated teacher of generations of Duke Engineering students. Among his Duke colleagues, he is also remembered for his kind nature and the annual "procrastinator's holiday party" he would host at his home each January, inviting the entire ECE department.



**Robert M. "Bob" Hochmuth**, professor emeritus of mechanical engineering and materials science, passed away on November 13, 2020. Bob Hochmuth served as chair of MEMS from 1986-1994 before retiring in 2004.

An expert in fluid mechanics, heat transfer and thermodynamics,

his legacy of scholarship and service are strong and lasting. He is remembered as an outstanding chair, scholar, teacher and wonderful colleague, who had a special sense for identifying, recruiting and supporting talented colleagues.

Hochmuth had a unique career path in the Pratt School of Engineering. Initially he joined the faculty as a professor of biomedical engineering in 1978, where he applied the principles of thermodynamics, and solid and fluid mechanics, to biological problems. He and his colleagues characterized and measured the elastic, viscous and adhesive properties of human red cells and white cells, especially neutrophils. His final work before he retired focused on stretching the individual microvilli that exist on the surface of neutrophils, on extracting receptors from the cell's membrane, and on measuring the forces of attachment between individual receptors and their antibodies. The continuous funding of his work for over two decades by the National Institutes of Health is a testament to its value and impact.

In 1986, he became chair of MEMS, which, as he noted in

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contributions to the 1980s tab of the MEMS history web page at [mems.duke.edu/about/history](http://mems.duke.edu/about/history), was full-circle for him, because all his engineering degrees were in mechanical engineering. He also shared there his positive experiences with fellow staff and faculty. ■

**James Kaiser**, who served as a visiting professor in Duke ECE for many years, died Thursday, February 13, 2020, following a brief illness. He was 90 years old. Kaiser is survived by his wife of 65 years, Margo; his children (June, Alan, David, Linda); grandchildren and his brother, Dale. He was preceded in death by his brother John.

Kaiser was born in 1929 in Piqua, Ohio. He attended the University of Cincinnati, where he earned his electrical engineering degree in 1952 and was a brother of the Beta Theta Pi fraternity. He then pursued graduate studies at the Massachusetts Institute of Technology (MIT), earning both his SM and ScD. Kaiser met his future wife while at MIT, where they married and began raising their family. After graduation, they moved to Summit, New Jersey, where Kaiser began his engineering research work at Bell Laboratories in Murray Hill. Kaiser's early work at Bell Labs focused on improving speech signal processing systems and developing filter design algorithms. He authored several key papers on digital signal processing in the 1960s, presenting the idea of the *lo-sinh* window, which could be used both for digital filter design and spectrum analysis. This window function later became commonly referred to as the Kaiser window. In the 1980s, Kaiser's focus shifted from linear to nonlinear filter design, driven by the need for better voice recognition algorithms. When the Bell System broke up in 1984, Kaiser moved to Bellcore to continue his research. Kaiser had a passion for trying to gain insight into the underlying physics of speech production and recognition and focused his research on modelling the human vocal tract. This research culminated with discovering a new analytic tool he collaborated on with his brother-in-law Herbert Teager, and together they published the foundational papers on what later became known as the Teager Energy Operator.

Kaiser was named an IEEE Fellow in 1973 for "contributions in digital signal

processing and the synthesis of digital filters," and received many IEEE honors and awards during the course of his career, including the IEEE Centennial Medal (1984), the IEEE W.R.G. Baker Award (1995) and the IEEE Jack S. Kilby Signal Processing Medal (2000).

After retiring from Bellcore, Kaiser continued being active in the engineering community as a visiting professor at Rutgers University and Duke University.

Being a self-described "number nut," Kaiser approached tasks and duties with precision, yet his love for family was immeasurable and unbounded. As he strived to enjoy each and every day, his eternal optimism, thoughtfulness and appreciation touched everyone around him. ■

**James H. McElhaney**, the Hudson Distinguished Professor Emeritus of Biomedical Engineering and an integral member of the Duke BME community, passed away on July 30, 2020. McElhaney joined Duke University in 1974, eventually serving as the chair of Duke BME in 1984 and holding the position for 12 years. In addition to playing a major role in the development of Duke BME into a premier, nationally recognized department, McElhaney served as the director of graduate studies in Duke BME, the co-director of the NSF Engineering Research Center, the assistant director of Interventional Cardiac Catheterization in the Division of Cardiology, a professor of experimental orthopedics in the Department of Surgery, and the program director of Duke BME Third-Year Medical Student Research program.

McElhaney is recognized as a distinguished researcher and a founder of the field of biomechanics. His work describing measurements and models of head, neck and spinal cord injury mechanisms has been instrumental in the design of protective football and motorcycle helmets, restraint systems, airbags and swimming pools. This work earned him a variety of awards and recognition, including the titles of national lecturer in the Scientific Research Society, life fellow in the American Society of Mechanical Engineers, and fellow in the American Institute for Medical and Biological Engineering.

During his time at Duke, McElhaney worked with students spanning biomedical engineering, electrical engineering, mechanical engineering, physics, medicine, biology, physiology, chemistry, nursing and zoology. He mentored more than 50 graduate students, supporting them as they found success in academic, industrial and government positions around the world. In 2009, he received the Duke Engineering Alumni Association's Distinguished Service Award for his extensive service and substantial contributions to Duke University, the biomechanics research community and the engineering profession. ■

**Paul Wang**, professor emeritus of electrical and computer engineering, passed away on January 27, 2021.

Wang served on the Duke faculty for nearly four decades. A native of Fujian Province, China and Taiwan, he earned his BS in electrical engineering from National Taiwan University and an MS in electrical engineering from the University of New Brunswick (Canada) before completing a PhD from Ohio State University in 1965. He served at Bell Laboratories in Communications Systems Research and Modern Control Theory before joining the Duke ECE faculty in 1968.

Wang was an early pioneer in the field of artificial intelligence. He was a prolific and renowned researcher and author in the areas of pattern recognition, image processing, fuzzy logic, mathematics of uncertainty, and intelligent machines. A dedicat-

ed teacher, he mentored generations of undergraduate and graduate students in ECE. He also consulted on diverse specialties including advanced fighter planes, naval ship navigation, energy, and highly reliable systems for Duke University Medical Center, Emerson Electric, Grumman, and LORD Corporation, amongst others. He was a board member and advisor to ECE-related companies, as well as an ASEE-NASA Fellow at Langley Space Research Center.

Wang maintained close ties to the ECE department and his beloved Duke University following his retirement in 2005, visiting often to talk with faculty and staff, and traveling extensively to inspire universities around the world to enhance their ECE programs. As professor emeritus, he also remained active in the scientific community, serving as editor of numerous journals, including special issues for the Elsevier journal *Information Sciences*, and managing editor of the journal *New Mathematics and Natural Computation*.

Wang was a kind and generous colleague who will be greatly missed by his many friends in ECE. He will be remembered for his wonderful zest for life—his curiosity about all things, his devotion to his family, and his great passion for history, reading, music, the arts, learning, and education. In 2009, Perkins Library exhibited "Chinese Paintings from the Kingdom of Min" from Dr. and Mrs. Wang's personal collection. A permanent collection of Dr. and Mrs. Wang's academic and literary donations is housed at Jimei University in Xiamen, China.

He is survived by his wife of almost 60 years, Julia Wang, as well as by son Samuel Wang T'86 P'24 (Barbara), grandson Samuel James Wang E'24 and granddaughter Lucia Wang; son George Wang, grandson Carter Wang, and granddaughter Leah Wang. ■

# InMemory

## Duke Engineering Alumni

**William B. Gum E'45** passed away on February 12, 2020.

**Walter P. Hardee, Jr. E'49**, beloved patriarch, enthusiastic singer, fun-loving jokester, husband and family man, died in August 2020 at the seasoned age of 95 at Springmoor Retirement Community, Raleigh, North Carolina. His spirit, easy nature and good humor will be missed by family, friends and acquaintances near and far who knew him well. Born in Durham in 1925 to Dr. Walter Person Hardee and Florence Rose Hardee, he was baby brother to older sisters Roberta and Margaret (both deceased) and nephew to a long list of Hardee uncles and aunts. Consigned some summers to his grandparents' country homestead in Stem, the story goes, he wandered barefoot, helped with farm chores and snacked on the ever-present sweet potatoes from the warming oven. Walter attended Durham High School, played church league basketball and drove his dad around town to make house calls. His college career was sidetracked by World War II, during which he attended West Point for one year and courted Ethel "Penny" Rothen of Bloomfield, New Jersey. With the war over, Walter, nicknamed "Moon" for his service haircut, matriculated to his hometown's Duke University, married Penny in 1947, started a family, earned a degree in civil engineering and then went on to grad school at Columbia in New York City. First jobs took him to Bluff City (Tennessee), Houston (Texas), Philadelphia (Pennsylvania) and Baltimore (Maryland) where, now a family of four boys (Philip, Chris, Eric and Jonathan), they settled at Three Streams in Cockeysville, MD for 18 years. Additional moves for work took them to Hudson, Ohio and then back to Ruxton, MD, where they settled in for a long period. With children fledged, there was now much travel to touch base with the growing family. In 2006, Moon and Penny looked for a retirement home near one of their children and moved south to Springmoor in Raleigh. A North Carolinian at heart, with Duke blue running through his veins, Walter relished his return to the Old North State and immediately got to work and play at Springmoor, chairing the maintenance committee, growing veggies in the community garden, singing in the chorus, visiting with new friends at meals, playing gin rummy, learning the idiosyncratic slopes of the putting green and polishing his croquet strategy. He didn't like to lose and didn't lose often, not even to the grandkids! He always enjoyed calls, visits, emails and the rare letters from his far-flung boys, their spouses and his grandchildren (Philip and Betty from Asheville (NC), Chris and Susan from W. Chesterfield (New Hampshire), Eric and Diane from Monroe (Washington), and Jon and Pam from Pittsboro (NC)), who served as extraordinary frontline caretakers for 13 years. Big Daddy (as he liked to be called) had eight sparkling grandchildren spread even wider: Rya, Burlington (Vermont); Sarah, Sacramento (California); Jennifer, Sunnyvale (CA); April, Durham (NC); Duncan, Asheville (NC); Toren, New Orleans, (Louisiana); Caitlin, Berlin (Germany); and Cooper, Somerville (Massachusetts). He

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also had three young great-grandchildren (Samuel, Maven and Liliana) with another on the way. Over the years, family reunions, often raucous, always involved singing, picking and Big Daddy's lonesome harmonica. They were memorable, and we will miss him so! Walter was pre-deceased by Penny in 2015. He is survived by all of his children, their spouses, grandchildren and great-grandchildren, as well as other extended family. To send him off, we share a family toast, a "Moonism," that was always a hit, despite the rolled eyes: "Here's to it and let's do it, and let's do it again. If we don't get to it to do it, we'll never get to it to do it again."

**Rhett T. George, Jr. E'55**, 87, assistant professor emeritus of electrical and computer engineering, passed away on December 14, 2020. Please see In Memoriam: Faculty for more information.

**Michael Swift Bender E'59** passed away at age 82.

**Ted S. Levy E'63** passed away in August 2020.

**Edward "Towson" Moore G'63, P'95**, after a short illness, beloved husband, father, brother, uncle, neighbor and friend, passed away peacefully in his sleep in the early morning hours of January 21, 2020, in Durham, North Carolina. In his final weeks, he was surrounded by his family and supported both near and far by an extensive network of friends and relatives. Towson had a heart of gold that few others in this world could match and was blessed to live an amazing life, full of wonder and love. Many times over the years, especially after the births of his grandchildren, he would stop and marvel at his many blessings in life, telling his family how incredibly lucky he was. Born February 26, 1937, in Wytheville, Virginia to Robert Brent Moore and Jane Oewel Moore, he was a Virginia farm boy at heart, but at a young age he developed a passion for electricity that never left him. He went to Virginia Tech and was a proud member of the Corp of Cadets and a high jumper on the varsity track team. He was an Army veteran, serving at Aberdeen Proving Grounds. He attended Duke University graduate school, where, under the tutelage of Dr. Tom Wilson, he became Duke University's first recipient of a PhD in electrical engineering. Following graduate school, he embarked on a new adventure with his college professor, Dr. Wilson, together founding Wilmore Electronics, Inc. in 1963. Towson spent the

rest of his career devoting his time and creative energy to the flourishing of Wilmore. He found great joy in designing and developing electrical power equipment that now provides reliable service in the energy, utility, vehicular, data communications and railroad industries in both the United States and in more than 20 foreign countries. The Wilmore community was like a second family for him, and he cared deeply about everyone there. The creation of Wilmore brought him decades of purpose and a way to make a difference in society and to better the lives of others.

He served on the board of the regional Goodwill Industries, serving as the chairman of its Board of Directors, and was a member of the Board of Trustees for Durham Technical Community College. He also served on Durham Tech's Foundation Board and on the Industrial Advisory Committee to its Electronics Technology Program. He was inducted into Virginia Tech's Academy of Engineering Excellence in 2005. Happily for all of us, when he was in graduate school, the librarian of the engineering library introduced Towson to the love of his life, Linda Lunsford, an English teacher at Durham High School and later at Northern High School. Married in 1965, they had two children and for 54 years have led a life of goodness, steadfastness and joy, including many trips saltwater fishing, skiing at Lake Gaston, hiking the wilds of Montana, playing tennis and golf, and enjoying Sunday dinners with their family. His kindness and smile will be forever missed, but we are so grateful for the decades of boundless love, the life lessons he imparted and the amazing adventures we shared. Towson is survived by his wife, Linda; son, Alan (Patty); daughter, Jennifer; grandson, Nathaniel; and granddaughter, Violet. He is also survived by his two brothers, who were two of his best friends, Charles Moore (Mary Lea) and Brent Moore (Connie).

**C. Frederick Rolle E'63, P'01** passed away on December 27, 2019.

**Malathi Veeraraghavan G'85, G'88**, professor of ECE at University of Virginia, passed away May 11, 2020. She was an ECE PhD alumna (1988), a former student of Kishor Trivedi. She had a wonderful career, first at Bell Labs, then as a professor at New York University and UVA. She was a fellow of IEEE. ■



## Dear Duke Engineering Alumni:

**T**he year of 2020 was, of course, in almost every way, not what any of us imagined it would be. Despite the many challenges, I am incredibly proud of the work of our Engineering Alumni Council to adapt and press forward with meaningful programs to support our alumni, our current students and our school.

Our mentoring program has continued to grow, reaching over 600 alumni and students this year, making it one of the largest of its kind across any school or unit at Duke. Most importantly, our alumni continue to show overwhelming commitment to connecting with and supporting our students during this period, which is incredibly difficult for so many. Even the most simple conversations can be immensely impactful right now. I cannot say thank you enough to all the alumni who have given their time.

**"I've participated in the Pratt mentoring program the past two years and had a great experience both years. Last year I was matched with Gabe Tsuboyama, and we've developed a close relationship that eventually led to a partnership with the company I will be working at post-grad and Gabe's firm. This year I was matched with Carlos Obando, and he's already given me some timely and relevant advice about post-grad opportunities for an engineer. I wanted to say thank you so much for organizing this fantastic program."**

—CONNOR PASSE, senior studying mechanical engineering

Will Senner

in downtown Durham. You will also soon hear more about Pratt's 2039 Plan, a distinctly Duke vision for the future of the school, which includes a focus on growing and developing alumni engagement as one of its core principles. And of course, last but not least, we welcome a new EAC President, Tracy Nickelsburg E'88, P'22. Tracy has been a member of the council since 2013 and an integral member of our executive committee since 2018. I cannot wait to see all the great things the EAC accomplishes under her leadership in the coming years.

Those of you who know me know that I might occasionally geek out on data and might occasionally (obsessively) listen to Stephen Dubner's Freakonomics Podcast. In the last year, he has closed his podcasts with a slightly different message, which I will borrow here:

Take care of yourselves, and if you can, someone else too.

**Will Senner, E'06, MEM'06**  
President, Engineering Alumni Council