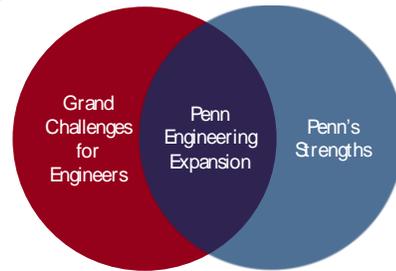


# *The Power of Penn Engineering* Inventing the Future!

Penn Engineering is where the next great breakthroughs happen, standing shoulder to shoulder with best-in-class schools in every discipline. In an era of transformative changes, fueled by a Cambrian explosion in technology, we have a unique opportunity to dramatically expand our capacity to foster innovation and game-changing research.

The world needs this leadership. As computer scientist Alan Kay once said: *The best way to predict the future is to invent it.* *The Power of Penn Engineering* positions the School to do just this. By building on years of planning, recognizing Penn's greatest strengths, and understanding where donor investment will add momentum, we can power a leap forward—enabling us to respond to society's grand challenges in health, energy, and urban infrastructure with bold solutions.



## **Our first priority: Harness data and information for the common good**

The flood of data now available in electronic form—scientific data via high-throughput measurement technologies; social media data; and sensor data collected by consumer products, biomedical devices, and robots—has transformed discovery and technological innovation. Data science and machine learning are fundamental to this process, impacting an array of fields in which Penn is an established leader—precision biomedicine, cognitive systems, and social networks among them.

As we take on real-world social and health challenges, *The Power of Penn Engineering* allows us to address new challenges, such as privacy, and the ethical and legal questions of fairness and transparency that emerge when autonomous networks and machines eventually translate data into action. A new data building will be one centerpiece of the Campaign, allowing us to mine and manage data for the other 11 schools and to intelligently focus and apply innovative, based on what Penn does best.

*The Power of Penn Engineering* consistently leverages Penn's brilliance, with a keen understanding of this campus' collaborative and intellectually vibrant environment. This culture is essential to enabling fundamental discoveries and catalyzing technological innovation. Data and information will build on collaborations at the Warren Center, the Raj and Neera Singh Program in Networked and Social Systems Engineering, and inter-school programs in neuroengineering, neuroscience, and cognitive systems. These partnerships, bolstered by the Campaign, offer the key to inventing the future. Imagine if we could use data science to revolutionize and personalize healthcare, or to build and support a sustainable, resilient infrastructure for major cities. We have a running start on these solutions, thanks

to Penn's excellence in social science across five schools (Annenberg, Law, SAS, SP2, and Wharton) and in health science across four more (PSOM, Nursing, Vet and Dental).

**Our second priority: Create new solutions for energy and sustainability**

Are we ready to adapt to ensure our planet survives and thrives? This is the focal point of many of today's scientific advances and technology innovations. We are already at the forefront of addressing these grand challenges, but there is urgency to accelerating our progress. Collaborations are also key to this work, calling on SAS and PennDesign and the unique capabilities of the Singh Center for Nanotechnology. Outcomes will include infrastructures that will use energy more efficiently, designs that will more cleanly convert energy and better store it, and new ways of tapping into renewable energy.

**What does Campaign-driven growth look like?**

To realize this ambitious vision, *The Power of Penn Engineering* will:

**Add revolutionary spaces**, for education, research, and technology innovation, including research and instructional laboratories, collaborative spaces for student projects, and active learning classrooms that support our aspirational goals in data and information systems, as well as energy and sustainability.

**Expand our superstar faculty**, who enable our vision and nurture our students' creativity. Our cadre of teacher-researchers, recognized as among the finest in the nation, will increase from 113 to 150, including 20 new endowed positions. Penn Engineering's student-faculty ratio will drop to 12:1, an important ingredient for excellence in education, research, and innovation.

**Invest in the inventors and entrepreneurs of tomorrow: our students.** We must open our doors wider and further expand diversity through scholarships and financial aid, and we must create more opportunities for students to apply their new ideas in labs and classrooms, and to connect to the burgeoning tech ecosystem in Philadelphia.

The Campaign's success will strengthen the environment in which Penn Engineering does its best work, creating a hotspot for original thinking and the infrastructure to turn this thinking into workable solutions. Most importantly, the Campaign will enable Penn to continue attracting the best and brightest faculty and students. In a competitive world, our people are the difference-makers and our most valuable asset.

With its very sustainability in question, the world needs the ingenuity and advancements this campaign will spark. *The Power of Penn Engineering* will forge novel solutions at a time when inventing the future, one breakthrough at a time, is the best and smartest investment in generations yet to come.