The School of Computational Science and Engineering (CSE) is the country’s premier department focused on solving real-world challenges through advanced computational techniques, thanks to a world-class faculty and dedicated students.

CSE’s mission is to improve the quality of life in society through advances in computational methods and data analysis techniques that solve diverse problems in areas such as the diagnosis and treatment of cancer and disease, sustainability, transportation, social networks, national security, and defense. Our department’s hallmark is in developing novel techniques for large-scale computation and massive data sets, often with leading industry partners and national labs, which is essential to progress in all research areas.

David A. Bader
Professor and Chair
School of Computational Science and Engineering

Message from the Chair

Our degree programs are creating a new type of scholar well-versed in synthesizing principles from mathematics, science, engineering and computing, and in using leading-edge technology. Our unique culture, creative community, and network of opportunities offer the most relevant preparation possible for students.

CSE students, researchers and partners all benefit from our ecosystem of innovation that integrates the existing assets of Georgia Tech’s Technology Square with new opportunities in interdisciplinary research, commercialization, and sustainability.

David A. Bader
Professor and Chair
School of Computational Science and Engineering

What is Computational Science and Engineering?

Computational Science and Engineering (CSE) is a discipline devoted to the study and advancement of computational methods and data analysis techniques to analyze and understand natural and engineered systems. CSE is inherently interdisciplinary, and integrates concepts and principles from computer science, mathematics, science, and engineering to define a new, cohesive body of knowledge that is rapidly changing. It solves real-world problems in science, engineering, health, and social domains, by using high-performance computing, modeling and simulation, and large-scale Big Data analytics. Our research enables breakthroughs in scientific discovery and engineering practice.

CSE research at Georgia Tech spans many areas. For example, research in high performance computing improves the efficiency, reliability and speed of algorithms, software, tools and applications running on a variety of architectures. Machine learning research explores the construction and study of algorithms that build models and make data-driven predictions or decisions. Data science and engineering techniques develop new methods that transform large and complex data sets into value. Data visualization requires creating a representation of data, interactively manipulating and querying it, and traversing enormous data sets ranging from terabytes to petabytes. Cyber security encompasses a range of analytic techniques that rely on high performance computing algorithms to secure the confidentiality, integrity, and availability of data.

The School of CSE is a diverse, interdisciplinary innovation ecosystem composed of award-winning faculty, researchers, and students. We are creating future leaders who keep pace with and solve the most challenging problems in science, engineering, health, and social domains.
Research Areas

Cyber security
As society becomes more connected and reliant on modern technology, it also grows more vulnerable to cyber attacks. CSE research has improved cybersecurity in a broad range of settings—from the detection of abnormal and malicious activity, to the identification of fraud and malware. A prominent area of CSE research, emerging graph technology at Georgia Tech has the potential to quickly interact with massive amounts of data and respond in near real time to cyber threats. In addition to advancing data analysis, we are also actively researching computer architectural requirements to maximize the performance of graph analyses across a variety of problem types. Our research can be applied to developing enterprise-level computing platforms that are more resistant and adaptive to cyber attack, and that can help organizations stop or predict attacks to protect customers and our nation’s critical infrastructure.

Data Science and Engineering
Georgia Tech is a prominent leader in the rapidly emerging field of Big Data, particularly in developing new methods to analyze or transform large and complex data sets into value. For example, applying data analytics to social networks may help industries understand trends in consumer behaviors. Big Data is also useful for addressing grand challenges in areas such as genomics, precision medicine, materials, manufacturing, and management of physical and cyber resources. The focus of Big Data research in CSE spans foundational topics (machine learning, data analytics, high performance computing, visualization) and multiple scientific domains (computational biology, materials science, and urban infrastructure, among others).

Data Visualization
Massive amounts of data are created by Internet use, an expanding number of sensors in the environment, and scientific research such as large-scale simulations. Data visualization presents data in ways that best yield insight and support decisions, even as computational science pushes toward exascale capacity, and new devices add to the outpouring from the Internet of Things. Developing visualizations requires creating a tractable representation of the data, then interactively manipulating and querying it. Often researchers must enable users to traverse data sets ranging from terabytes to petabytes. To design visualizations, researchers combine techniques from several disciplines, including data mining, machine learning, and human-computer interaction.

High Performance Computing
High performance computing (HPC) researchers devise computing solutions at the absolute limits of scale and speed to keep pace with the demanding computational needs of our rapidly evolving society. In this compelling field, technical knowledge and ingenuity combine to drive systems using the largest number of processors at the fastest speeds with the least amount of storage and energy. Attempting to operate at these scales pushes the limits of the underlying technologies, including the capabilities of the programming environment and the reliability of the system. HPC researchers develop efficient, reliable, and fast algorithms, software, tools, and applications. The software that runs on these systems must be carefully constructed and balance many factors to achieve the best performance specific to the computing challenge.

Machine Learning
Machine learning (ML) focuses on the development of intelligent systems that can teach themselves from a huge amount of data, distill information too subtle for humans to perceive, and act and adapt without the need for explicit programming when encountering new information, examples, or environments. Research in this area explores the construction and study of algorithms that build models and make data-driven predictions or decisions. A wide range of applications benefit from ML, including recognizing images, characters, and spoken language; categorizing messages; diagnosing and treating complex diseases such as asthma and cancer; detecting fraud; and predicting the responses of humans, natural events, and other dynamic processes. ML spans many broad research areas and groups at Georgia Tech.

The Institute for Data Engineering and Science

Professors Srinivas Aluru and Dana Randall (School of Computer Science) are co-directors of the Institute for Data Engineering and Science (IDEAS), which leverages Georgia Tech’s research expertise, resources, and partnerships to develop new methods that transform data into value by analyzing large and complex data sets. Applying data analytics to social networks may help industries understand trends in consumer behaviors. Similar computational capabilities may also provide insight on tackling some of the most critical issues facing society today, including programs to detect vulnerabilities in power grids or technologies to monitor protein interactions in cancer research.

Strategic research is at the heart of Big Data endeavors at Georgia Tech. Emphasizing personal and global applications, as well as core industry solutions, our researchers define the future role of data science technologies in society. The study of basic scientific and engineering problems is central to our work, but equally important is the integration of innovation and discoveries into real-world systems and applications. The exceptionally high quality of our programs, faculty, and laboratories positions Georgia Tech as a global leader in Big Data research.

IDEAS plays a leading role in the Georgia Research Alliance, a centerpiece of the state’s economic development strategy. Research is conducted for industry and government by the Georgia Tech Research Institute, various academic schools and departments, and more than 100 interdisciplinary units. The Institute boasts strengths in data visualization, advanced analytics, machine learning, and high-performance computing. Application areas for Georgia Tech’s Big Data research include astrophysics, biomedicine, combustion, energy, finance, healthcare, manufacturing, materials, information and cyber security, social networks, sustainability, and transportation.

Georgia Tech is poised to lead Big Data research and economic development with the construction of a state-of-the-art high-rise building in Tech Square. The new building, scheduled to open in early 2018, will feature over 750,000 square feet of office and laboratory space, and an 80,000-square-foot data center for advanced cyber infrastructure and national data repositories. Occupied jointly by Georgia Tech researchers and private industry, the building will be equipped to move massive data sets via the National LambdaRail network.

Tech Square boasts more than 100 startups and established companies drawn to the area for its proximity to Georgia Tech research expertise and student talent. Fortune 500 and major multinational companies that have established a presence in Tech Square include AT&T Mobility, General Motors, Penguin Computing, Coca-Cola Enterprises, Kimberly-Clark, Ernst & Young, ThyssenKrupp Elevator Americas, Panasonic Automotive Systems, and Home Depot.
Genomes Galore: Unlocking High Performance Computing Resources
Continuous improvements in technology, increasing data volumes, and the decreasing cost of DNA sequencing have eased data production, but complicated how we analyze these massive amounts of data. Data produced by disparate sequencing technologies require a variety of analysis software, and current tools are quickly becoming unable to handle the high volume and variety of new datasets. Solving these issues requires a specialized knowledge in computing that most bioinformatics researchers do not possess. Professor Srinivas Aluru’s research group is identifying common analysis tasks, developing new approaches and algorithms, and implementing ways to automatically generate parallel code that can be used by the non-specialist researcher. The new open source software libraries will unlock access to high performance computing resources, and enable rapid advances across diverse disciplines such as human genetics and metagenomics. A $2 million award from the NSF and NIH Big Data Initiative supports the project.

Fast Algorithms for Imperfect, Heterogeneous, and Distributed Data
Systems that must rapidly process information struggle to scale to the volume and characteristics of changing data environments and the range of applications for data analysis. As part of the larger XDATA initiative, a group led by Professor Haesun Park focuses on developing foundational algorithms and tools to analyze large sets of imperfect, incomplete data using research in the areas of analytics, visualization, and infrastructure. Constrained low rank approximations are an indispensable tool used to model massive-scale data analytics problems and design effective and scalable algorithms. The research enables the analysis of text data in communication technologies, which occupies a large percentage of Big Data sources. Results aid decision makers in many areas, including understanding how the public acts on information or policies for improving sustainability. The project is funded with $2.7 million from DARPA.

Graph Analysis and the Power Efficiency Revolution
Power efficiency is one of the greatest challenges in designing any computing system, especially for massive streaming graph analytics, which are used in numerous complex Big Data problems. Applications include investigating social networks, and improving cyber security or computer-network functionality. Chair David Bader and Research Scientist Jason Reidy are part of a national effort to increase the computational power

A Big Data Innovation Hub for the South Region
Although Big Data is a rapidly emerging discipline with far-reaching scientific and economic potential, there remains a gap in the translation of fundamental research into economic growth and end-user impact. Further, Big Data often arises in the practice of industry and government, and in broad geographic settings, making multi-stakeholder partnerships vital to exploiting its full potential. To address these challenges, Srinivas Aluru and collaborators at the University of North Carolina at Chapel Hill created the South Big Data Regional Innovation Hub (South BD Hub). It is composed of academic institutions from 16 Southern states and the District of Columbia, in partnership with a wide swath of collaborators from industry, government, and nonprofit organizations. It is collectively nurturing a Big Data innovation ecosystem, promoting collaboration, and providing essential workforce training. Initial areas of focus are on health care, coastal hazards, industrial Big Data, materials and manufacturing, habitat planning, Big Data sharing and infrastructure, and economic, privacy, and policy issues. The South BD Hub was established with an NSF award for $1.5 million.

Scaling Up Computational Chemistry
A multidisciplinary research group led by Associate Professor Edmond Chow and funded by the National Science Foundation, has developed scalable, parallel algorithms and software for computational chemistry. In collaboration with Professor David Sherrill’s chemistry group and the Intel Parallel Computing Lab, the software has been used for quantum chemical calculations on protein-ligand systems and has been scaled up to occupy 1.6 million cores of Tianhe-2, currently the world’s fastest supercomputer. The software, called GTFock, has been released and continues to be developed in an open-source environment.

Sustainable Development Guided by Computation
Assistant Professor Bistra Dilkina’s research addresses difficult real-world problems in the new interdisciplinary field of computational sustainability. Her work leverages techniques from optimization, network design and machine learning to inform policymakers in issues related to balancing environmental, economic and social needs while using limited natural resources. Her group develops foundational advances in combinatorial optimization techniques for solving large-scale real-world problems, and employs them in a wide range of applications, such as biodiversity conservation, urban design, transportation and social networks.

Using Big Data Tools to Protect and Interact
The Polo Club of Data Science bridges data mining and human-computer interaction to synthesize scalable, interactive tools that help people understand and interact with Big Data. Led by Assistant Professor Polo Chau, the group blends techniques from machine learning, data mining, visualization, and user interaction. Several effective products are a result of their research. More than 1.2 million people worldwide are protected by the Polonium and Aesop malware detection technologies, deployed and patented with Symantec Corporation. Users can interactively explore large graphs using the Apollo and MAGeX systems, which combine machine inference and visualization. The researchers have also created award-winning open source graph mining libraries for the Pegasus system.

Modeling user activities in social networks
While social media and social interaction data grow, there is a great need for a robust and predictive modeling framework that can adapt to the complexity and heterogeneity of social interactions. In response, Le Song and Hongyuan Zha are developing a set of robust machine learning methods for modeling and managing complex and noisy social activity and social media information. The work spans several areas, including event history analysis, spatial and temporal point processes, kernel methods, graphical models, and sparse recovery theory. Applications of the research are broad, from promoting important activities in online health forums, to rapidly disseminating ideas across scientific communities.
CSE’s Strategic Partnership Program provides a pipeline of recruiting talent to help companies tackle today’s toughest computational challenges.

Strategic Partnership Program

Whether it is a global supply chain, an emerging international market, or any number of massive data sets generated by the advance of new technologies, the power of today’s industries to apply the latest computation-based innovation is vital to remain competitive. Market advantages and timely solutions lie hidden in data for those with the power to find them.

CSE’s Strategic Partnership Program (SPP) is creating a vibrant, mutually beneficial link between the School and industry. By joining SPP, companies have direct access to some of the world’s top emerging computational scientists and engineers. Partners can forge the kinds of private-public connections that have proven essential in tackling the most complex problems through scientific research. They can also recruit graduate students from a Top 10 computing program to the workforce and help shape the highly skilled workers of tomorrow through CSE curriculum advice. SPP partners are perfectly positioned to provide the type of feedback needed to keep the program application-focused even as students are firmly grounded in scientific knowledge and practice.

Several valuable benefits include close face-to-face interaction with our faculty and students, feedback on curriculum, access to students to effectively shape and recruit the most promising prospects, and research interaction to drive breakthroughs in important industry sectors. Partners also attain greater brand visibility through placement of their corporate logo on our Strategic Partners Wall.

The School of CSE works with partners to target their specific research needs, offer a competitive advantage, and affect their bottom lines. In doing so, CSE delivers the tangible benefit of a highly trained computational workforce and rapidly advancing research programs that keep pace with reality.

Awarded Centers for Computing

GT Intel® Parallel Computing Centers
Professor Srinivas Aluru and Associate Professor Edmond Chow are recipients of awards that established Georgia Tech Intel® Parallel Computing Centers (IPCCs). Dr. Aluru’s IPCC for Big Data in Biosciences and Public Health is focused on developing and optimizing parallel algorithms and software for handling high-throughput DNA sequencing data and gene expression data. Dr. Chow’s IPCC is modernizing software multicore and manycore processors in the fields of computational chemistry and biochemistry. These fields actively fuel scientific discovery and are responsible for a significant portion of computer and supercomputer time worldwide.

GT NVIDIA GPU Center of Excellence
Georgia Tech was awarded an NVIDIA GPU Center of Excellence for its integration of GPU Computing for a host of science and engineering projects and for its commitment to teaching GPU computing. The center has more than 30 faculty participants, and several founding partners: Centers for Disease Control and Prevention (CDC), Georgia Tech Research Institute (GTRI), Oak Ridge National Laboratory (ORNL), the Georgia State/Georgia Tech Center for Advanced Brain Imaging (CABI), and ArmyFire. The activities cover virtually every dimension of scalable heterogeneous computing with graphics processors. Center Director and Joint Professor Jeffrey Vetter, and CSE Chair David Bader are the principal investigators.

Research Perspectives

David Bader
The junction of Big Data and security is shaping increasingly important research that uses high-performance cyber analytics—led by research universities and industry—in partnership. Using graph analytics and new visualization methods, researchers give government and industry actionable knowledge from growing mounds of data. Streaming graphs, for example, detect structural changes and flows, spot clustering or key actors and highlight subtle anomalies. Graph analytics require large-scale, high-performance computers that can trace trillions of interconnected vertices and edges that change over time. Projects such as Georgia Tech’s STINGER offer an open-source way to understand data with large, streaming graphs, which can also be combined with techniques from machine learning to be more effective. Big Data is creating profound business and social opportunities in nearly every field because of its ability to speed discovery and customize solutions.

Haesun Park
Many important advances in Big Data rely on problem modeling that incorporates real-life constraints, scalable automated algorithms for analysis, and design of interactive visual analytics systems. A large percentage of modern data sets involve text and network information. Text analysis, community detection, and their integrated analysis play key roles, which create an increasing demand for developing foundational methods for dimension reduction, clustering, topic modeling and classification. Carefully designed numerical algorithms for constrained, low-rank approximation produce highly accurate and scalable solutions with speedups orders of magnitude faster than other existing methods. Our numerical computing and optimization foundations are reaching far beyond the classical areas of scientific computing to solve big problems such as discovering ways to encourage more micro-financing lending activities to alleviate poverty around the world.

Rich Vuduc
While many may believe their software is fast enough, less attention is given to an important consideration: whether it is energy-efficient or power-efficient enough. How can algorithms and software become more energy- and power-efficient? The resounding answer is through high-performance computing. The algorithmic and software techniques that underlie HPC can be used to make not only fast code for supercomputers, but power- and energy-efficient code for all computers. The School of Computational Science and Engineering’s HPC Garage is at the forefront of developing new analytical models and experiments that explain the relationships and tradeoffs among the time, energy, and power needed by an algorithm, as well as how to save all three at the level of algorithms, data structures, and software.

Richard Fujimoto
Parallel and distributed simulation remains a critical and vibrant field of research. Our work with domain experts drives developments in important application areas such as the on-line management of transportation systems, the creation of more sustainable cities, and the design of large-scale telecommunications networks. What propels our progress are challenges arising from the complexity and scale of modern systems in these application domains, and from emerging computing platforms such as mobile computers and massively parallel supercomputers. Our research is producing technological advances in areas such as dynamic, data-driven distributed simulations, execution of simulations on mobile and massively parallel computing platforms, and rapid development of interoperable distributed simulations.
CRUISE is a 10-week internship that gives undergraduates considering doctoral studies a preview of life as a graduate student. Applicants are matched with advisors and work closely with faculty on existing research projects. They also attend several social events, learn to conduct research, prepare a graduate school application, and present findings in a symposium format during the final week.

CRUISE encourages but is not limited to minority and women students. Both U.S. and international students are encouraged to apply. Students admitted to the program will be offered a stipend for the summer that will cover the student’s housing and local expenses.

For more information, visit www.cse.gatech.edu/research/cruise.

Data Science for Social Good

The Atlanta Data Science for Social Good (DSSG) program is an intensive, 10-week paid internship whose co-director is CSE’s own Bistra Dilkina. The program invites students from around the country to work with local, government, and non-profit organizations to solve some of their most difficult problems. Student-run project teams, guided by Georgia Tech faculty mentors, apply concepts and technologies from data science, which includes analytics, modeling, and prediction. The teams create data-driven innovation for domains such as transportation, energy, smart urban development, sustainability, public safety and food systems. Students possess diverse backgrounds in computer science, statistics, applied math, civil engineering, and public policy. With DSSG programs in both Atlanta and Chicago, participants become part of an exciting network of students, mentors, professors, and projects.

For more information, visit http://dssg-atl.io/.

School of CSE Faculty

Srinivas Akun
NPIC, Big Data, bioinformatics, and systems biology
Research in computational biology with emphasis on biocomplexity, bioinformatics, and the modeling and analysis of complex biological systems.
Professor
Ph.D., Iowa State University, 1994
AAAS and ESE Fellow, NSF CAREER Award

David Better
NPIC, learning analytics
Designing algorithms and software for test-generation systems, with applications in biology, graph analysis, and systems biology.
Professor and Chair of the School of Computational Science and Engineering
Ph.D., University of Maryland, 1995
AAAS and ESE Fellow, NSF CAREER Award

Mark Borodovsky
Bioinformatics and computational genomics
Developing reverse engineering algorithms for computational analysis of biological systems such as DNA, RNA, and proteins.
Regents’ Professor, joint with the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University.
Georgia Center for Bioinformatics and Computational Genomics
Ph.D., Microwave Institute of Physics and Technology, 1976

Ken Brown
Quantum information systems
Developing algorithms for quantum computers, understanding the boundary between classical and quantum algorithms for calculating material properties.
Associate Professor, joint with School of Chemistry and Biochemistry
Ph.D., University of California, Berkeley, 2003
John and Conte North Fellow, Alexander von Humboldt Foundation Research Fellow

Polo Chau
Data mining, secure-computer interaction, visualization, and cyber security
Optimizing online, interactive tools for making sense of billion-scale graph data, with applications to fraud detection, malware analysis, and more.
Ph.D., Carnegie Mellon University, 2012
Assistant Professor
Associate Director, MS Analytics
Raytheon Faculty Fellowship, James Eadie Faculty Fellowship

Edmond Chow
Computational physical chemistry
Developing scalable, parallel software methods to analyze for computational chemistry, including quantum and classical molecular simulations.
Ph.D., University of Minnesota, 1997
PSC4AW Award, ACM Gordon Bell Prize

Bistra Dilkina
Computational sustainability, optimization and machine learning
Previously worked on computational approaches to facilitate adoption of biodiversity conservation, urban sustainability, and social networks.
Associate Professor
Ph.D., Cornell University, 2010
Raytheon Faculty Fellowship

Richard Fujimoto
Machine and human system simulation
Applying transaction optimization, communication networks, and defense applications, including managing three modal platforms in supercomputers.
Regents’ Professor
Ph.D., University of California, Berkeley, 1983

Surya Kalindri
Networks, information, materials data analytics, materials innovation, cyberinfrastructure
Using data science and information techniques to design, develop, and deploy of materials systems in advanced materials; old/new concepts and tools into academic and industry.
Professor, Joint with School of Mechanical Engineering
Ph.D., Massachusetts Institute of Technology, 1982

Haason Park
Numerical algorithms, data analytics, and visual analytics
Developing numerical linear algebra and optimization tools in open-source data analysis and information mining applications from modeling real-life problems and applying scalable analytics for massive data sets.
Professor
Ph.D., University of Chicago, 1987
AAM Fellow

Jason Reddy
High-performance graph-structured data analysis Enabling scalable tools and algorithms for dynamic social networks analysis.
Creating parallel frameworks for scalable machine learning, leveraging graph data that supports many different areas of research on dynamic data.
Distinguished Professor
Ph.D., University of California, Berkeley, 2010

Raytheon Faculty Fellowship, James Eadie Faculty Fellowship

Raytheon Faculty Fellowship, James Eadie Faculty Fellowship

Jimeng Sun
Data mining and machine learning
Applying large-scale data analytics and similarity metric learning to biomolecular applications. Data mining using Big Data analytics, similarity metric learning, computational genomics, and group theory and genomics.
Assistant Professor
Ph.D., University of Sydney and National ICT Australia, 2008
ACM “CAREER” Award, NSF CAREER Award

Le Song
Data mining and machine learning
Making machine and adaptive machine learning models scalable with Big Data and complex data models and scalable unsupervised/semi-supervised learning algorithms using deep reinforcement learning.
Professor
Ph.D., University of Sydney and National ICT Australia, 2008
NSF “CAREER” Award, NSF CAREER Award

Jinfeng Sun
Data mining and medical informatics
A major research interest is developing methods and similarity analysis on biomedical applications. Data mining using Big Data analytics, similarity metric learning, computational genomics, and group theory and genomics.
Assistant Professor
Ph.D., Carnegie Mellon University, 2007

Rich Vuduc
Computing systems, networks, parallelism, and performance
Using machine learning algorithms to build an architecture that can dynamically analyze and tune the performance of both hardware and software.
Associate Professor
Northeastern Chair for Academic Programming, Program
Ph.D., University of California, Berkeley, 2004
Raytheon Faculty Fellowship, NSF CAREER Award

Hongyuan Zhu
Data mining and machine learning
Applying data mining and machine learning techniques to problems in data science.
Assistant Professor
Ph.D., Stanford University, 1983

Education and Training Initiatives

Education & Degree Programs

Ph.D. in Computational Science & Engineering

The doctoral curriculum in CSE is designed to provide students with the practical skills and theoretical understanding they’ll need to become leaders in the field. In conjunction with foundational courses, students develop skills to become proficient software developers on both conventional and high performance computing platforms. CSE also offers doctoral degrees in computer science, bioengineering, and bioinformatics.

M.S. in Computational Science & Engineering

The CSE master’s degree curriculum imparts students with solid foundational knowledge and skills and includes technical specialization courses that enhance a student’s domain expertise. Exposure to other disciplines teaches students how common computational science and engineering concepts are applied in different domains. CSE also offers master’s degrees in computer science, bioengineering, and bioinformatics.

Finally, the School also manages the Modeling & Simulation thread in the College of Computing’s groundbreaking Threads curriculum for computer science undergraduates.

FLAMEL

FLAMEL (From Learning, Analytics, and Materials to Entrepreneurship and Leadership) is a graduate training program that prepares Ph.D. students at Georgia Tech to develop and employ advances in an emerging field known as materials informatics. FLAMEL brings together computing researchers, materials scientists, engineers and mathematicians to quantify the microstructures that comprise materials and develop new algorithms and software for their design. The program also includes a focus on entrepreneurship to enable graduate trainees to transform technical innovations into commercial products and services.

More than 20 experts in the associated disciplines have invested technical innovations into commercial products and services. They are the faculty members of the School of Mechanical Engineering, School of Chemical and Biomolecular Engineering, School of Chemistry and Biochemistry, School of Civil and Environmental Engineering, School of Electrical and Computer Engineering, School of Computer Science, School of Biomedical Engineering, and School of Computer Science.

CRUISE encourages but is not limited to minority and women students. Both U.S. and international students are encouraged to apply. Students admitted to the program will be offered a stipend for the summer that will cover the student’s housing and local expenses.

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Students in the 2015 Data Science for Social Good program helped the Atlanta Fire Department develop a new system to more efficiently identify and schedule city buildings for periodic fire inspection.