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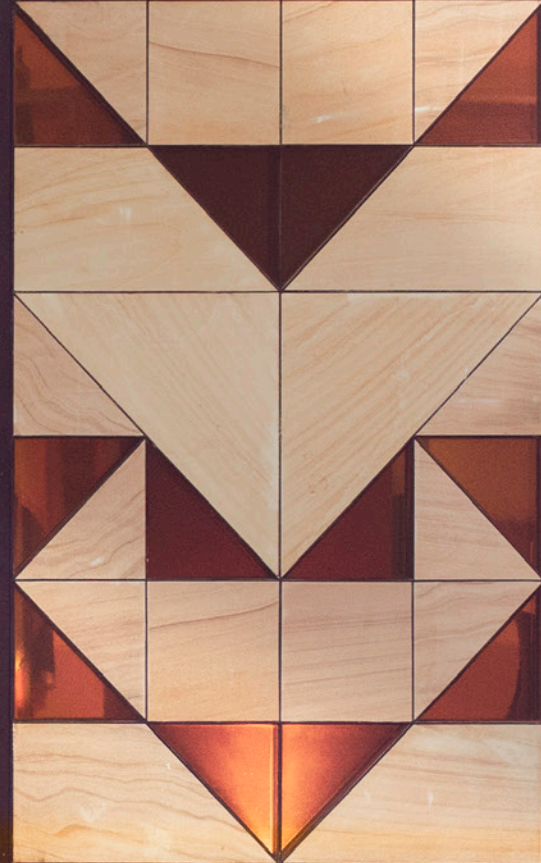
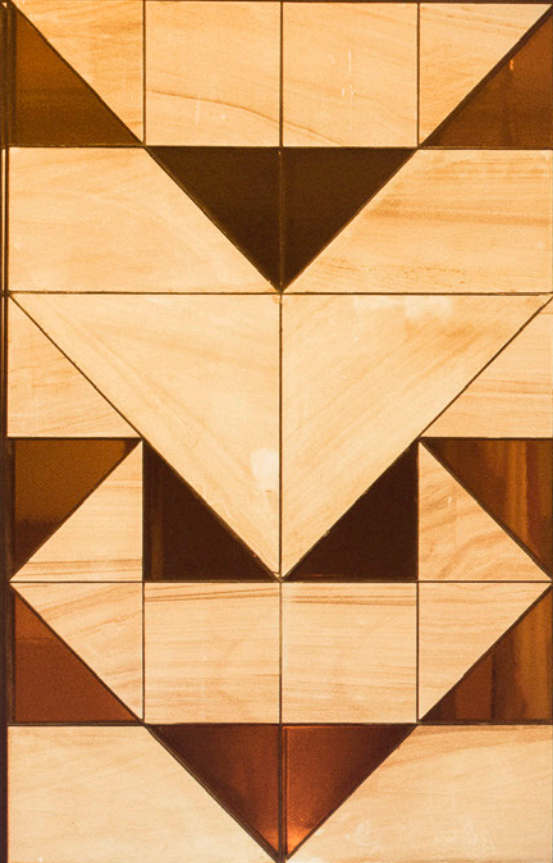
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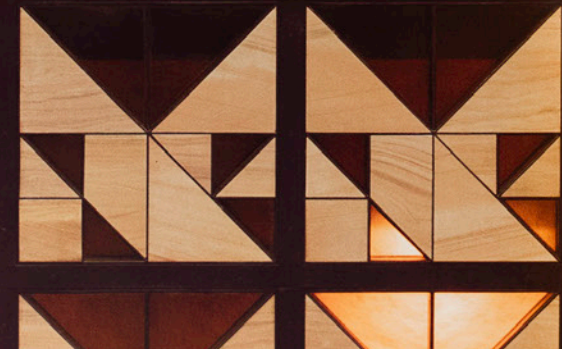
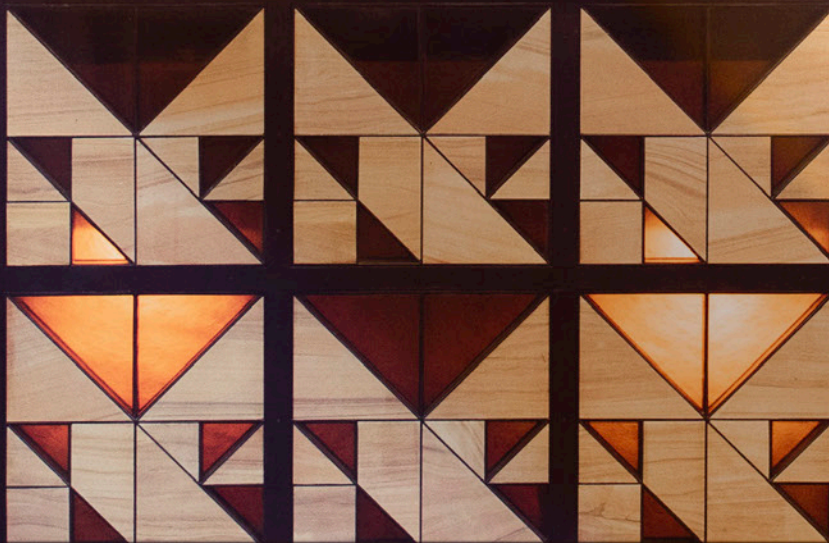
Annual Report 2021-2022

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Annual Report
2021-2022



Carnegie
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University
Qatar



A woman in a black hijab and face mask is holding a large Qatari flag. In the background, other people in academic regalia are visible, and a large red banner with the text 'Carnegie Mellon University Qatar' is partially seen.

Carnegie Mellon University Qatar

Acknowledgments

In 2004, Carnegie Mellon and Qatar Foundation began a partnership to deliver select programs that will contribute to the long-term development of Qatar. For nearly two decades, we have shared a mission: to provide a world-class education to students in Qatar.

Carnegie Mellon University in Qatar thanks **His Highness Sheikh Tamim Bin Hamad Al Thani**, Amir of the State of Qatar, for his leadership and commitment to progress and education.

We also express our deep appreciation to **His Highness the Father Amir Sheikh Hamad Bin Khalifa Al Thani**, **Her Highness Sheikha Moza bint Nasser**, Chairperson of Qatar Foundation, and **Her Excellency Sheikha Hind bint Hamad Al Thani**, Vice Chairperson and CEO of Qatar Foundation, for their vision and leadership.

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We are Carnegie Mellon

Our Vision

Carnegie Mellon University will have a transformative impact on society through continual innovation in education, research, creativity and entrepreneurship.

Our Mission

To create a transformative educational experience for students focused on deep disciplinary knowledge; problem-solving; leadership, communication and interpersonal skills; and personal health and well-being.

To cultivate a transformative university community committed to:

- a) attracting and retaining diverse, world-class talent;
- b) creating a collaborative environment open to the free exchange of ideas, where research, creativity, innovation and entrepreneurship can flourish; and
- c) ensuring individuals can achieve their full potential.

To impact society in a transformative way—regionally, nationally and globally—by engaging with partners outside the traditional borders of the university campus.



From the **President**

Since its inception in 2004, Carnegie Mellon University in Qatar has reflected this university's commitment to apply a globally inclusive mindset to our role as educators, knowledge creators and engines of economic impact.

Today, CMU-Q continues to train the world's most talented students, with a total of 439 enrolled from 53 countries. These CMU-Q students are preparing to enter our technology-driven world as changemakers. I was thrilled to see many of them when I joined three CMU-Q classes for Commencement exercises this past year, which brought the total number of CMU-Q alumni to 1,117. Even though these alumni are still early in their careers, they are already contributing to the development of Qatar—and making an impact on our global society.

A focus on innovative learning and a transformative student experience defines CMU-Q. In addition to its popular programs in biological sciences, business administration, computer science, and information systems, the campus continues to find new and unique ways to engage with the CMU global community. We are providing these connections through innovative programs including study abroad, the Technology Consulting in the Global Community Program, Global Initiative, and micro courses, which are taught remotely by professors from our Pittsburgh campus and allow CMU-Q students to engage in topics that typically lie outside CMU-Q offerings, including artificial intelligence and society, blockchain, and computational medicine. CMU-Q also resumed campus exchange this year, with 47 students spending a semester on our Pittsburgh campus.

Our success to date would not be possible without the support of the Qatar Foundation, and the founding vision of **His Highness the Father Amir, Sheikh Hamad bin Khalifa Al Thani, Her Highness Sheikha Moza bint Nasser, and Her Excellency Sheikha Hind bint Hamad Al Thani**. I continue to be deeply grateful for this dynamic partnership.

I invite you to explore the events and accomplishments from the past year that are outlined in this annual report, along with our vision for the continued growth of CMU-Q. I congratulate you on what we have accomplished together, and I look forward to seeing how CMU-Q continues to contribute to our global Carnegie Mellon community in the coming years.

Farnam Jahanian

President, Carnegie Mellon University

From the Dean

Welcome to the Carnegie Mellon University in Qatar *Annual Report 2021–22*.

CMU-Q emerged from the pandemic during the 2021-22 academic year, moving forward as a community at a safe and careful pace. With the vast majority of our community members vaccinated, we incrementally returned to in-person classes and events. We focused on restoring the student experience that is at the heart of a Carnegie Mellon education.

This past year was fundamentally one of renewal and reconnection as we reintroduced the classroom experience. Faculty, staff and students alike reported how happy they were to be back together. As the year progressed, the CMU-Q building became once again a hub of exploration, collaboration, and enthusiasm.

To cap off an extraordinary year, we celebrated the graduation of the classes of 2020, 2021 and 2022 over three nights. At each ceremony, I noticed something unexpected: the enthusiasm in the audience was growing. As I left the stage after the last ceremony, I could hear that the cheers and applause were the loudest from one area of the audience. Seated together were many faces from the previous two nights. The classes of 2020 and 2021, who had just celebrated their own long-awaited graduation ceremonies, came back to support the newest cohort of alumni.

The pandemic was an exceptionally challenging time, but I am heartened to see the deep bonds of this encouraging, kind, and strong CMU-Q community. Although we come from many different backgrounds, we are connected through a shared joy of learning and discovery. We supported one another through the challenges of the pandemic, and we celebrated together as we emerged on the other side.

There are many milestones and achievements within the pages of the CMU-Q *Annual Report 2021-22*. Behind each of these individual accolades is our community, supporting and nurturing curiosity, creativity and discovery.

Michael Trick

Dean, Carnegie Mellon University in Qatar





Our Alumni

Graduation marks both the end of the undergraduate journey, and a new era as part of the Carnegie Mellon alumni network.

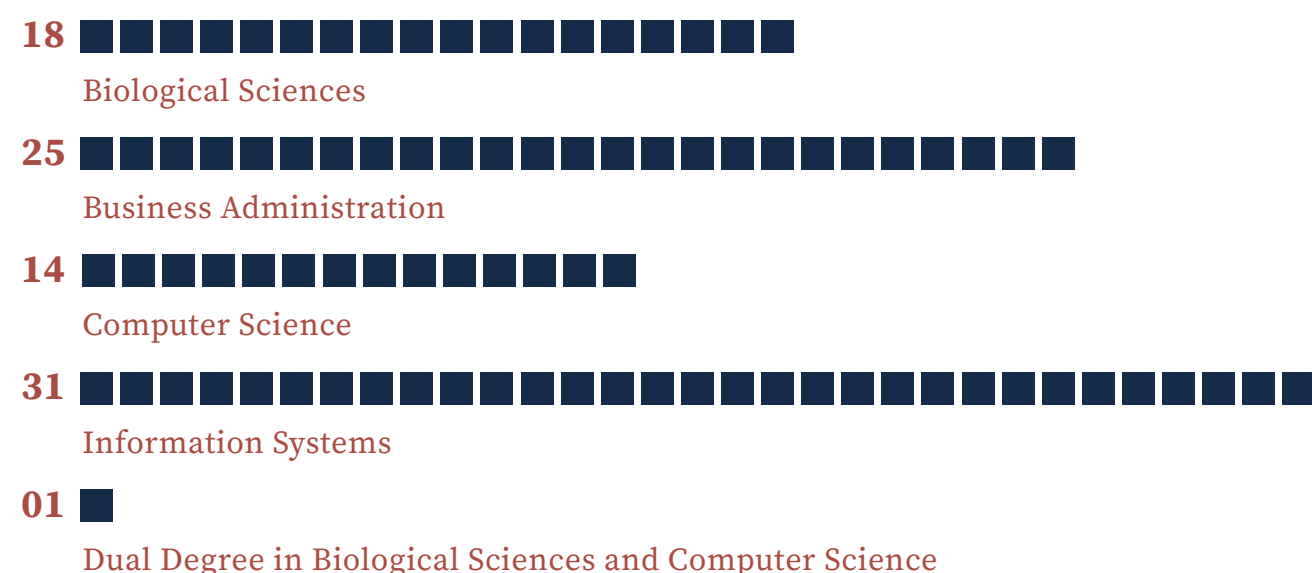
There are more than 1,100 alumni from the Qatar campus, building their careers in Qatar and around the world. They are a group of enthusiastic young professionals who remain actively engaged with the CMU-Q community.

Carnegie
Mellon
University
Qatar



Class of 2022

Graduates by program



Michael Trick
Dean

Farnam Jahanian
President, Carnegie Mellon University

Biological Sciences Laila Assami	Computer Science Đorđe Popović
Business Administration Enas Mohamad Mohsen	Information Systems Fabiha Tahsin

Fatima El-Sallabi **Đorđe Popović**

Fatima El-Sallabi	Mohammed Tareef Sayed
Đorđe Popović	Fabiha Tahsin



1

DUAL DEGREE

Mubarak Al-Sulaiti
Class of 2022
Student Speaker

Classes of 2020 and 2021

In May 2022, CMU-Q held separate graduation ceremonies for the classes of 2020 and 2021, whose formal celebrations had been postponed due to pandemic restrictions. The majority of the graduates returned to campus so they could be officially recognized as CMU-Q graduates.



"The tradition of graduation is very important at CMU-Q, and I am delighted we could finally share this occasion with the classes of 2020 and 2021. This ceremony not only caps off the undergraduate experience, it is also a community celebration of our shared vision of knowledge and progress."

Michael Trick
Dean



"Whether you studied biological sciences, business, computer science, or information systems, you have each received exactly the tools you need to make extraordinary contributions to shaping our day-to-day lives and improving the human condition."

Farnam Jahanian
President
Carnegie Mellon University

"This is the story of the Class of 2020 – unique, powerful and very present. May our presence keep contributing to science and business and technology; may our presence keep leading to positive change; and may it continue to embody what it means to have our heart in the work."

Dona Ferdinando
Class of 2020 speaker



"To my classmates, congratulations! We made it. We are making things happen. We are building the future."

Naram Hajjar
Class of 2021 speaker



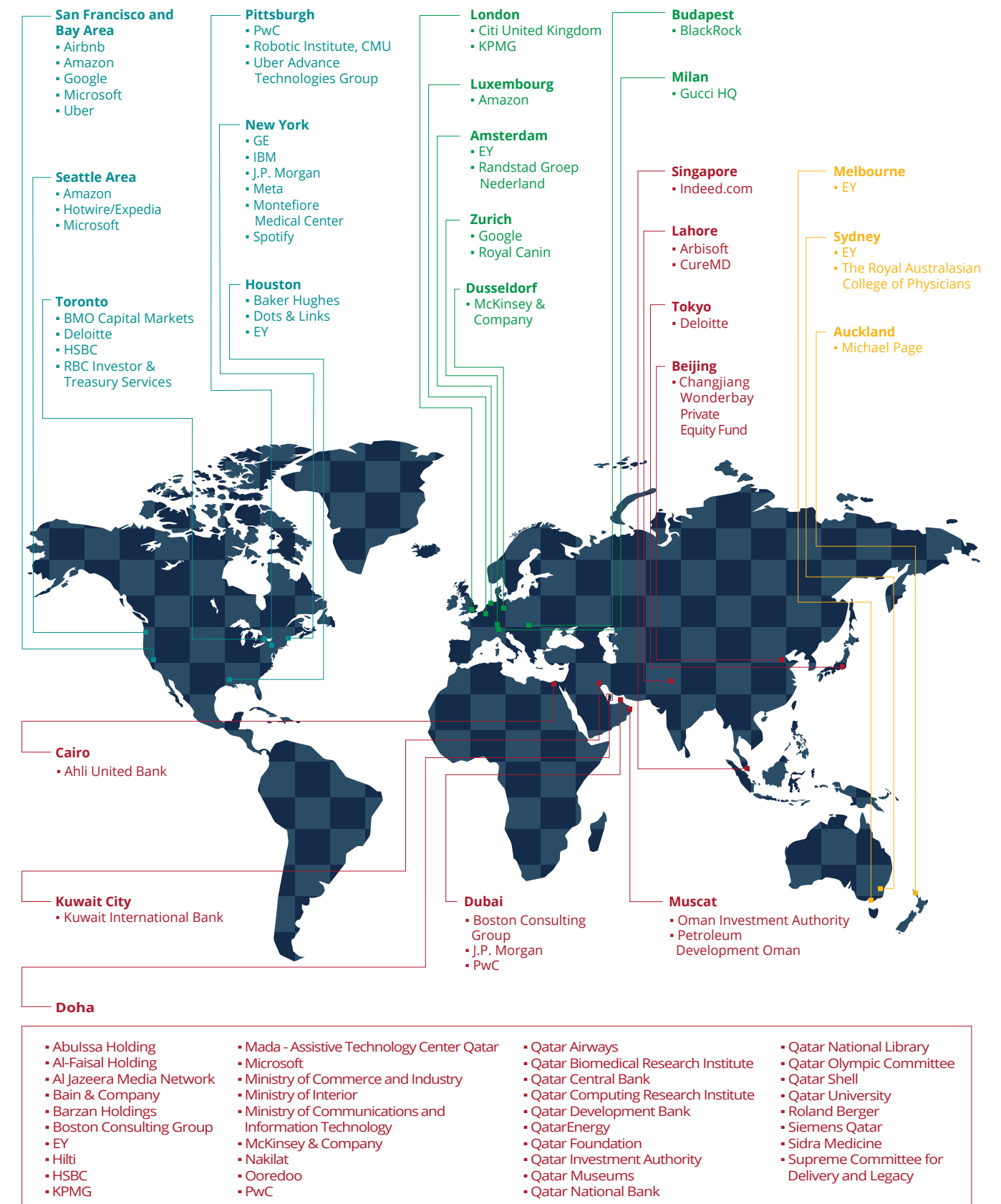


The Global Alumni Network

The CMU-Q alumni network extends throughout Qatar and beyond. Our alumni work at top organizations and creative new startups. They are influencing government policy, analyzing big data, spearheading creative projects, educating people, researching new ideas and working to improve the lives of others.



Alumni are working at top international organizations





Alumni in Qatar

Most CMU-Q alumni either stay in Qatar, or return after gaining experience abroad to build their careers and contribute to the development of Qatar.

Education Excellence Day Awards

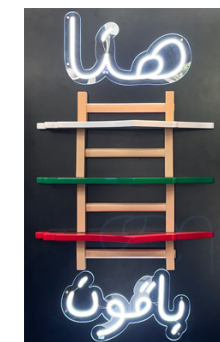
Five CMU-Q graduates were named as recipients of this year's Education Excellence Day Awards: **Aisha Al-Darwish** (BA 2021), **AlAnoud Al-Ghamdi** (BA 2021), **Reem Al-Haddad** (IS 2021), **Shouq Al-Khuzaei** (IS 2021), and **Reem Al-Sayed** (BS 2021).

The awards were formally presented by **His Highness the Amir, Sheikh Tamim Bin Hamad Bin Khalifa Al Thani**.



Smart City Expo Doha

The CMU-Q booth at the Smart City Expo Doha conference was a hub of alumni reconnections. Over the two day event, the booth hosted graduates who work in the areas of tech and sustainability in Qatar.



Ajyal art exhibition

The artwork of **AlAnoud Al-Ghamdi** (BA 2021) and **Reem Al-Haddad** (IS 2021) was featured in an exhibition as part of the Doha Film Institute's Ajyal Film Festival.

MENA InsurTech hackathon

Five alumni were on the winning team for InsurTech 2022, creating an artificial intelligence-based medical self-diagnosis algorithm. **Abdurrahman ElZafarany** (BS 2020), **Youssef Kanbour** (CB 2019), **Abdul Manaam** (IS 2022), **Swapnendu Sanyal** (CS 2020) and **Omar Sinan** (CS 2021) work for the health care startup, Rimads.

QF Alumni Reunion

CMU-Q drew a large contingent of alumni to the Qatar Foundation Alumni Reunion at Al Shaqab Indoor Arena. The event was an opportunity for alumni from the Qatar Foundation partner universities to reconnect and network.



QF alumni Instagram channel

- **Anas Abouqamer** (BA 2009) spoke about how to grow a social media community.
- **Mariem Fakih Zguir** (IS 2013) spoke about the role of education in sustainability.



Alumni Around the Globe

The first graduating class at CMU-Q was in 2008, and each year our alumni network grows in both numbers and achievements. These are just a few of our alumni accomplishments from around the world over the past year.

LinkedIn 2021 Top Startups in Indonesia

Rifki Pratomo's (BA 2011) company Andalin ranked in the top ten of LinkedIn's 2021 Top Startups in Indonesia. Andalin is an international trading and freight forwarding platform.



Alumni startup acquired by Africa's Helium Health

Meddy, a startup that grew out of a CMU-Q class project, was acquired by Africa's Helium Health. **Haris Aghadi** (IS 2014) and **Abed Alkarim Khattab** (BA 2016) joined Helium's leadership team. In March, they received the Most Valuable Innovation Response to COVID-19 award at the Qatar Digital Business Awards.

Series A funding and Gates Foundation grant

The alumni startup Stellic was awarded a grant from the Bill and Melinda Gates Foundation to identify the technology challenges for students in under-represented and at-risk populations. Co-founders **Sabih Bin Wasi** (CS 2015), **Rukhsar Neyaz** (CS 2015), and **Musab Popatia** (CS 2016) also raised 11 million USD in Series A funding for the San Francisco-based business.

Artificial Intelligence in Schools

Varun Arora (IS 2012) published the book, *Artificial Intelligence in Schools: A guide for teachers, administrators and technology leaders*. Arora is the CEO of OpenCurriculum, an online tool that helps teachers design effective curricula.

Dubai alumni connections

The careers of many Carnegie Mellon alumni take them to Dubai, a regional hub for several industry sectors. In 2022, these alumni reconnected at a series of small gatherings.





our Students

Our student community is at the heart of all we do at Carnegie Mellon University in Qatar. During the admission cycle each year, we seek out applicants who are motivated and eager to learn. Together, our enrolled students form a global-minded community that is enthusiastic, encouraging and supportive.



We consider each applicant to CMU-Q holistically: we look at academic excellence, special interests, leadership qualities, and the motivation to learn. Through this process, we select a diverse, talented class who will support and challenge one another.

Recruitment for the Class of 2026

During the recruitment cycle for the Class of 2026, application numbers rose by 17%, with more than 1,600 students vying for 115 spaces in the first-year class. The admitted class includes many students who have won notable national awards, and a number are considered among the best in their respective countries. The admitted class includes students from 105 high schools in 43 countries.

Pre-college workshops and programs

- Alice Programming Competition
- Code in Alice
- Discover IS
- Experience CMU-Q
- Game Developer Academy
- Ibtikar
- MindCraft
- Summer College Preview Program

Early Decision

A record number of high school students applied for Early Decision, and 27 students from a total of 20 high schools were offered admission.

Marhaba Tartans

To welcome the newly admitted students to the Class of 2026, CMU-Q held a Marhaba Tartans event. Students learned more about the university's academic programs and student experience in the first in-person Marhaba Tartans since 2019.



CLASS OF 2025

The incoming class began their studies with a week of orientation activities, including a formal first-year convocation ceremony that was livestreamed.

117
STUDENTS

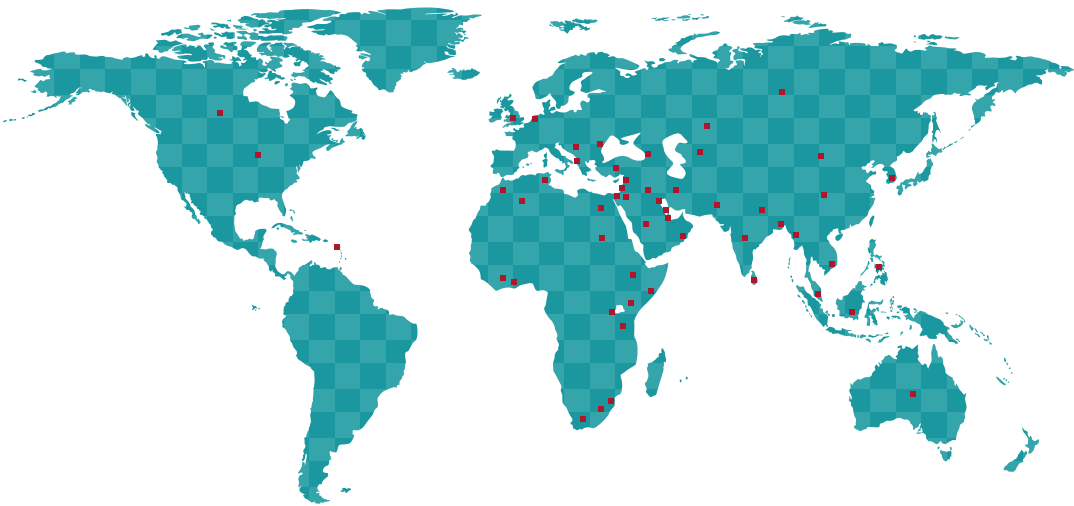
33
NATIONALITIES

46
QATARI CITIZENS



Our Student Community

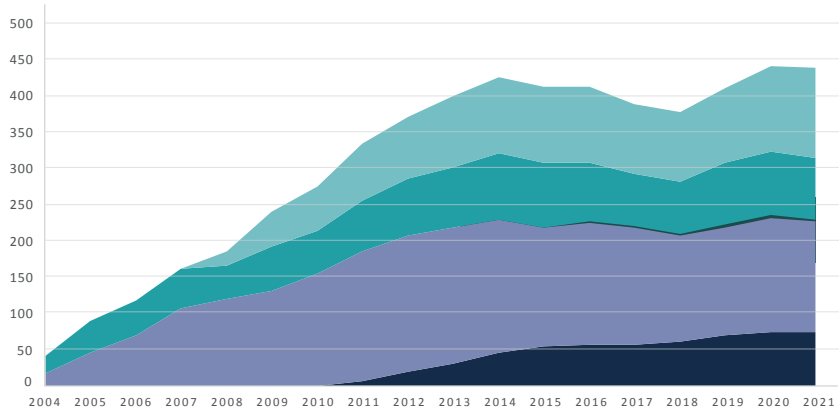
CMU-Q students come from remarkably diverse backgrounds, and they possess a wide spectrum of interests, talents and aspirations. They encourage and inspire one another to learn and explore.



Countries represented

Albania	Georgia	Lebanon	Philippines	Sudan
Algeria	Ghana	Lesotho	Qatar	Syria
Australia	India	Malaysia	Romania	Tanzania
Bahrain	Indonesia	Mongolia	Russia	Tunisia
Bangladesh	Iran	Morocco	Rwanda	Turkey
Canada	Iraq	Myanmar	Saint Kitts and Nevis	United Kingdom
China	Jordan	Nepal	Saudi Arabia	United States of America
Cote d'Ivoire	Kazakhstan	Netherlands	Serbia	Uzbekistan
Egypt	Kenya	Oman	Somalia	Vietnam
Eswatini	Korea	Pakistan	South Africa	
Ethiopia	Kuwait	Palestine	Sri Lanka	

Students enrolled, by program



Source: Carnegie Mellon University in Qatar registrar

- Biological Sciences
- Business Administration
- Computational Biology
- Computer Science
- Information Systems

Financial aid

Financial aid options are a vital component of a diverse, competitive and strong CMU-Q student community. In 2021-22, there were several types of financial support available for our students.

- Amiri scholarship, Ministry of Education and Higher Education
- Sponsorship from a national organization
- Qatar Foundation need-based grant
- Qatar Foundation financial aid
- Qatar Foundation scholarship
- Carnegie Mellon University in Qatar scholarship
- FAFSA loans for U.S. citizens

Organizations that sponsored CMU-Q students

- Alfardan Group
- Amiri Diwan
- Aspire Zone Foundation
- Embassy of the State of Kuwait
- Ministry of Education and Higher Education
- Ministry of Interior
- Qatar Airways
- Qatar Armed Forces
- Qatar National Bank
- Qatar Energy
- Sidra Medicine

OUR STUDENT BODY

439

STUDENTS ENROLLED

117

FIRST-YEAR STUDENTS

53

NATIONALITIES

38%

QATARI CITIZENS

59%

FEMALE

A photograph of a young woman with dark hair tied back, wearing a dark face mask and a dark long-sleeved shirt. She is sitting at a desk, looking at a laptop screen. Her right hand is on the laptop keyboard, and her left hand is touching the laptop screen. There are some papers on the desk in front of her. The background is a bright, out-of-focus indoor space. A semi-transparent red overlay covers the right side of the image, where the text is placed.

Academics

Breakthroughs happen at the intersection of fields—a Carnegie Mellon University specialty. CMU-Q students are encouraged to learn their disciplines in depth, explore beyond their fields, and work collaboratively to tackle society's biggest challenges.



Academics at CMU-Q

With careful attention to health and safety guidelines, students, faculty and staff returned to the classroom to learn, discuss, study and collaborate in person.

Summer Edge Program

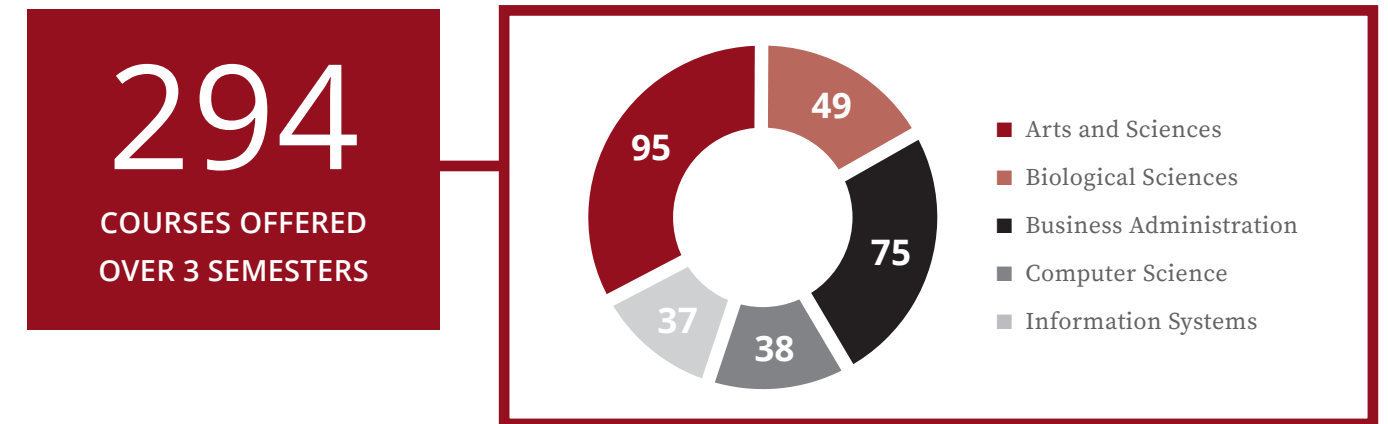
Two thirds of the newly admitted class participated in the sixth annual Summer Edge Program. The program was created in 2016 to help prepare the incoming class for the rigor of academics at CMU-Q. Over the years, the program has evolved to better engage students and to provide them with the skills to tackle their first weeks with confidence.

“Throughout the year we are crafting and customizing the Summer Edge Program. We follow up with faculty members and students and we learn where they need support, so each class of new students will have a meaningful experience.”

Mariam Thomas

Director, Academic Resource Center

Courses offered



Top undergraduate rankings

The computer science and information systems undergraduate programs at Carnegie Mellon were ranked first by *U.S. News and World Report*. Both programs are offered at the Qatar campus.



Micro courses

Micro courses offer CMU-Q students options to sample the broad range of disciplines available at Carnegie Mellon’s main campus. Taught by professors from the Pittsburgh campus, three micro courses are equivalent to one semester course.

- Design, brands, and futures: Design thinking for sustainable change, **Jonathan Chapman**
- Social influence, **Chante Cox-Boyd**
- Nudging behavior in business and public policy, **John Gasper**
- Storytelling in science and technology, **Kevin Haworth**
- Mobile application development in flutter, **Larry Heimann**
- Understanding the demented and delusional brain, **Ken Hovis**
- Introduction to information graphics, **Suguru Ishizaki**
- Shaping and being shaped by AI, **Chinmay Kulkarni**
- Digital accessibility fundamentals, **Divakaran Liginlal**
- Grand Challenges in AI: Past, present and future, **Ganesh Mani**
- Internet of Things, **Michael McCarthy**
- Introduction to product management, **Bob Monroe**
- Electricity markets: management and operation, **Panagiotis Moutis**
- User-centered research and evaluation, **Raelin Musuraca**
- Global water and development, **Abigail Owen**
- Design, brands, and futures: Service design approaches and pivots, **Daphne Peters**
- The TransOceanic Railway, **Henry Posner**
- Design, brands, and futures: Designing product and service identities, **Stacie Rohrbach**
- The Beatles, **Stephen Shultz**
- Voice leadership: Fundamentals, techniques and application for the public speaker in the professional world, **Daniel Teadt**
- The photo essay, **Dylan Vitone**
- Networks in the real world, **Osman Yagan**



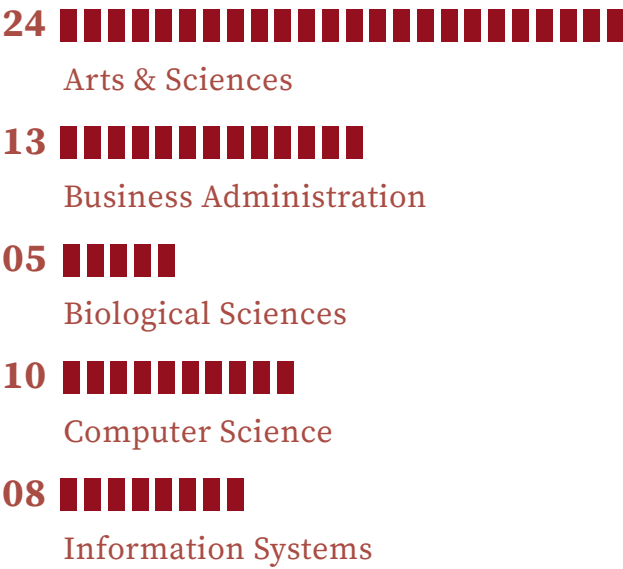
Faculty

CMU-Q faculty members are experts in their fields, providing individualized attention and focused instruction so that all students can reach their potential.

Faculty leadership

Selma Limam Mansar stepped into the new role of senior associate dean for faculty and research and **Dudley Reynolds** was appointed the new senior associate dean for education. Both Limam Mansar and Reynolds joined the CMU-Q faculty in 2007.

Number of faculty



“CMU-Q is a place where many faculty members choose to stay long term, to grow their careers and to guide and nurture the next generation of young professionals in Qatar.”

Michael Trick
Dean

Promotions



Chadi Aoun,
Teaching Professor,
Information Systems



Houda Bouamor,
Associate Teaching
Professor,
Information Systems



Niraj Khare,
Associate Teaching
Professor,
Mathematics



Giselle Reis,
Associate Teaching
Professor,
Computer Science

Meritorious Teaching Award 2022

Patrick Walsh received the Meritorious Teaching Award at the Senior Honors ceremony for the Class of 2022.

New faculty members

Eduardo Feo Flushing,
Visiting Assistant
Teaching Professor,
Computer Science

Marina Papanastassiou,
Visiting Professor,
International Business

Ekaterini Klepousniotou,
Visiting Associate
Professor,
Psychology

Tatiana Usova,
Senior Librarian,
Director, Library

Retirement

John O’Brien,
Associate Professor,
Accounting and
Experimental
Economics,
Former Senior
Associate Dean,
Faculty and Outreach

Teresa MacGregor
Director, Library

George White,
Distinguished
Career Professor,
Entrepreneurship



Milton Cofield

1951-2022

Milton Cofield, distinguished service professor of business management, passed away unexpectedly on April 20, 2022. Cofield was dedicated to education and research, especially undergraduate teaching, throughout his career. He joined the Carnegie Mellon faculty in 2001, serving as executive director and administrative head of the Undergraduate Business Administration program. Cofield joined CMU-Q in 2017 where he taught until his death. He will be dearly missed by his colleagues and the hundreds of students he taught over the years.



Biological Sciences

Biological sciences students at CMU-Q do more than study science: they learn to follow their curiosity, explore hypotheses, and contribute in a meaningful way as young scientists and researchers.



MCS Gilman Award

Ayah Salameh was named one of two MCS Gilman Award winners for 2022. Established in 2019, the MCS Gilman Award recognizes graduating students from the Mellon College of Science (MCS) who have demonstrated exceptional commitment and growth through the MCS Core Education. Salameh is the first student from the Qatar campus to receive the award.

Wimmer Faculty Fellowship outcome

Mohamed Bouaouina completed his Wimmer Faculty Fellowship project, working with Eberly consultants to create new online modules for the Cell Biology course. The modules reinforce concepts from pre-requisite courses that are critical to understanding the new, more advanced course material.

Alumni mentors

Several biological sciences alumni spoke to current students about their experiences after graduation. The alumni sessions were part of the first-year class EUREKA: Discovery and Its Impact, as well as the third-year class PROPEL.



Senior Honors Theses

AlReem AlKhanji, Investigating the effect of the antioxidants lycopene and β -carotene on human breast cancer cells

Amna Al-Sayegh, Efficacy of the phage tail fiber peptide as a bacterial detection tool

Moza Al-Shukri, Phage lysin as a bacterial detection tool

Maryam Aslam, The roles of integrin-ECM protein interactions in cell signaling, adhesion, and migration in select cancer cells

Laila Assami, Assessing the role of $\alpha V \beta 6$ integrin expression in subpopulation of PC3 cells

Aya Salameh, Evaluating the role of p38 MAPK signaling pathway as a cross-link between colon tumor cells and fibroblasts

BIOLOGICAL SCIENCES BY THE NUMBERS

75
STUDENTS

5
FACULTY MEMBERS

49
COURSES

109
ALUMNI

CLASS OF 2022 AWARDS

Laila Assami
Outstanding Academic Achievement Award

Mohammed Tareef Sayed
Qatar Campus Scholar

Business Administration

Business administration students learn quantitative decision-making, our pioneering approach to business education.

Book chapter on COVID-19 recession

Three students, **Lojaein Galal**, **Daisy Ru**, and **Ihsane Sadiki**, published a book chapter on the impact of the COVID-19 recession. Along with faculty advisor **Veli Safak**, the students researched how different countries recovered from past recessions, and applied their findings to the COVID-19 pandemic.

Refinitiv Portfolio Management Competition

Daisy Ru won the Refinitiv Portfolio Management Competition, Middle East and Africa edition. The competition, which included competitors from 17 universities in seven countries, challenged students to build a portfolio of S&P 500 companies and manage it over several weeks. Ru scored at the top of the field, edging out the second-place competitor by only a fraction of a point.

Football analytics course

CMU-Q and a leading global sports analytics firm, Stats Perform, delivered an online introductory course in football analytics. Open to all Education City students, the course was taught by **Patrick Lucey**, an alumnus from Carnegie Mellon and chief scientist at Stats Perform. Students delved into visualization and machine learning methods for analyzing spatial and granular data.

Senior Honors Thesis

Nour Mohamed, Is the future female?
A study on educational attainment and economic development



BUSINESS ADMINISTRATION BY THE NUMBERS

152
STUDENTS

13
FACULTY MEMBERS

75
COURSES

541
ALUMNI

CLASS OF 2022 AWARDS

Enas Mohamad Mohsen
Outstanding Academic Achievement Award

Fatima El-Sallabi
Qatar Campus Scholar,
Andrew Carnegie Society Scholar



Computer Science

Computer science students learn both the theoretical foundations and practical knowledge to push the frontiers of the field and make a real-world impact.

Invent for the Planet

Deep Chandra and **Faisal Mashhadi** teamed up with Education City students to place second at the Invent for the Planet competition hosted by Texas A&M University at Qatar. The team tackled challenges that prevent small-scale fish farmers from using digital tools to optimize operations.

Allen Newell Award

Dorđe Popović was named a runner-up for the Allen Newell Award for Excellence in Undergraduate Research. Popović was recognized for his senior honors thesis, “FedTeams: Towards trust-based and resource-aware federated learning,” a project he completed with advisors **Khaled Harras** and **Hend Gedawy**.

Qatar Collegiate Programming Competition

CMU-Q hosted the first in-person QCPC, including teams from CMU-Q, Georgetown University in Qatar, Qatar University, and Bright Future International School.

CMU-Q teams took the top two spots, qualifying for the Arab and African regionals: the first-place team included **Andrey Genze**, **Igli Mlloja** and **Abubakr Mohamed**, and second-place team included **Thang Bui**, **Andrei-Horia Pacurar**, and **Ulan Seitkaliyev**. Both teams finished in the top quarter of competitors.



Senior Honors Theses

Ammar Karkour, Py*: Formalization of Python’s verifiable bytecode and virtual machine in F*
Faculty advisor: **Giselle Reis**

Dorđe Popović, Fed Teams: Trust-based and resource-aware federated learning
Advisors: **Khaled Harras** and **Hend Gedawy**

COMPUTER SCIENCE BY THE NUMBERS

84
STUDENTS

9
FACULTY MEMBERS

38
COURSES

184
ALUMNI

CLASS OF 2022 AWARDS

Dorđe Popović
Outstanding Academic Achievement Award,
Qatar Campus Scholar,
Andrew Carnegie Society Scholar



Information Systems

Information systems students learn to design, deliver and use technology to solve problems for companies, governments and society.



Challenge and Innovation Forum

Mohammed Al-Qassabi placed in the top five at Challenge and Innovation Forum Qatar 2021. The competition was hosted by the Ministry of Sports and Youth and the Qatar Scientific Club and included 100 participants from 38 countries. **Houda Bouamor** served as a mentor during the hackathon portion of the competition.

Consulting project course

For the first time, the information systems consulting project course included clients who were all CMU-Q graduates: **Omar Shaath** (IS 2011) from TASMU, **Ghanim Al-Sulaiti** (IS 2012) from Qatar Computing Research Institute, **Noora Masoor** (IS 2018) from Ministry of Labour, **Omar Shamiyeh** (IS 2015) from Good Vibes, and **Maryam Al-Naemi** (IS 2018) from Ornate.

AIS Thailand chapter

Nui Vatanasakdakul, associate teaching professor of information systems, spearheaded the first national chapter of the Association of Information Systems (AIS) in Thailand. Vatanasakdakul is also the president-elect for the AIS Qatar chapter.



Healthcon 2022

Second year student **Muneera Al-Baker** was part of the winning team for Best Creative Idea at Healthcon 2022 in Dubai. The competition was hosted by the Gulf Health Council as part of Expo 2020.

National University of Singapore

Chadi Aoun shared his expertise at the National University of Singapore with a lecture on the economic antecedents and future prospects of global warming.

Stanford Global Women in Data Science

Houda Bouamor gave an invited talk about the challenges of dialectical Arabic processing at the Stanford Global Women in Data Science conference.

INFORMATION SYSTEMS BY THE NUMBERS

125

STUDENTS

8

FACULTY MEMBERS

37

COURSES

283

ALUMNI

CLASS OF 2022 AWARDS

Fabiha Tahsin

Outstanding Academic Achievement Award, Qatar Campus Scholar



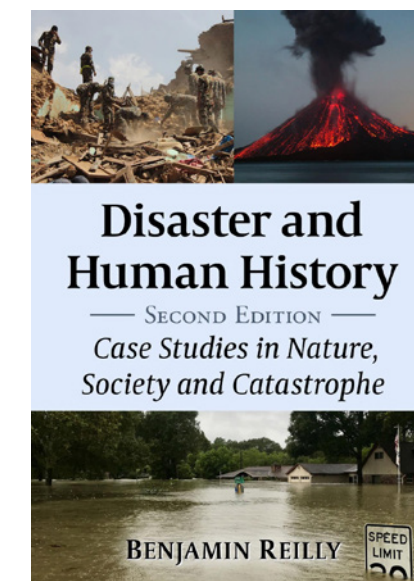
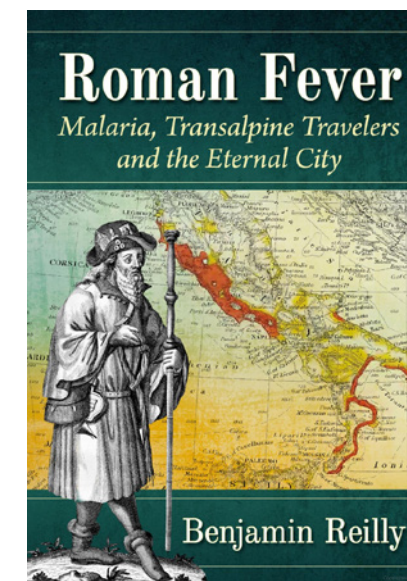
Arts and Sciences

Students in every program learn to draw connections and work effectively outside their majors through study in the arts and sciences. Courses include required subjects such as chemistry, English, math and physics, as well as electives in a wide variety of disciplines.



Language learning and multilingualism

Dudley Reynolds co-edited a book of insights from around the world on approaching language education from an inclusive, multilingual perspective. *Policy Development in TESOL and Multilingualism: Past, Present and the Way Forward*, was published by Springer. The book is also edited by **Kashif Raza** of Qatar University and **Christine Coombe** of Dubai Men's College, Higher Colleges of Technology.



Book releases

Benjamin Reilly wrote two books that were published within the academic year: *Roman Fever Malaria, Transalpine Travelers and the Eternal City*, and *Disaster and Human History: Case Studies in Nature, Society and Catastrophe, Second Edition*. Both books were published by McFarland and Company.

Majāl Undergraduate Journal

Faculty editors **Kira Dreher** and **Jeffrey Squires**, along with a student editorial team, are reviewing submissions for the first edition of the *Majāl Undergraduate Journal*. The concept was developed by students in a summer project course, and will publish undergraduate research, coursework, and creative expression across disciplines and modalities.

United Nations Sustainable Development Goals Education and Design Bootcamp

Jennifer Bruder was part of the team that created the United Nations Sustainable Development Goals (UN-SDGs) Education and Design Bootcamp at Hamad Bin Khalifa University. Bruder also served as a mentor at the event, where participants learned, explored, and developed educational tools to teach the UN-SDGs.

ARTS AND SCIENCES BY THE NUMBERS

24

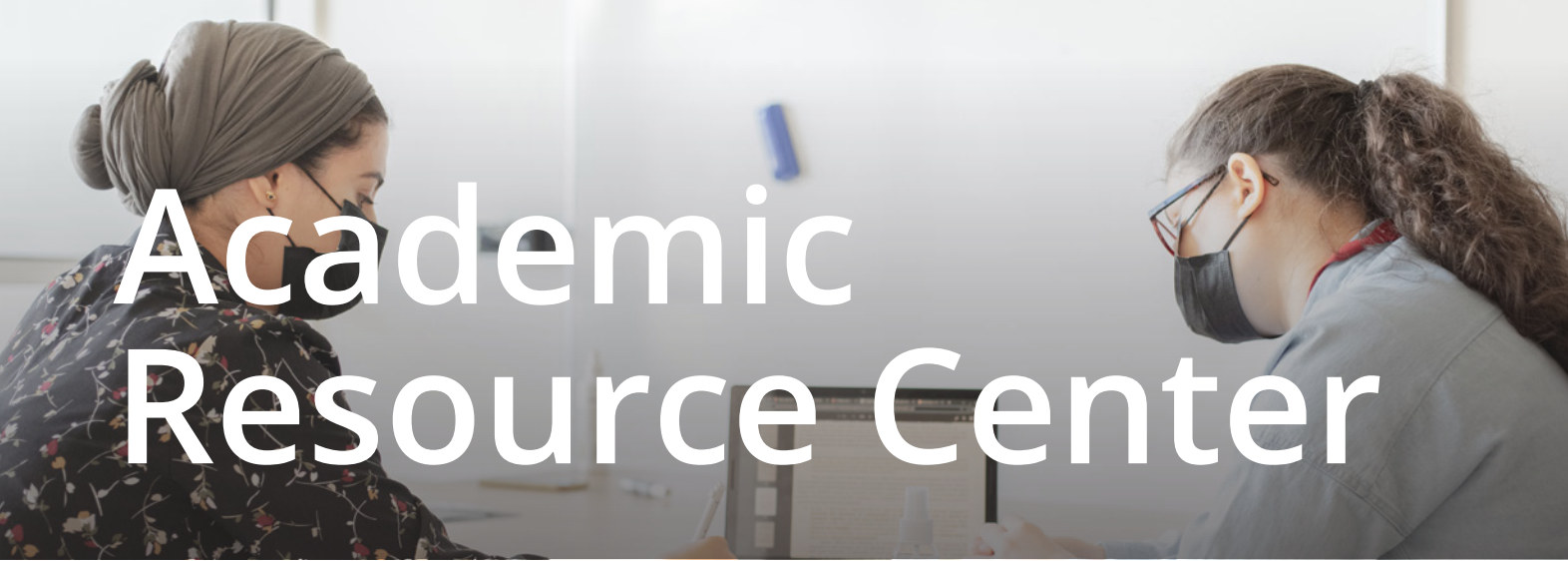
FACULTY MEMBERS

95

COURSES

12

DISCIPLINES



Academic Resource Center

The Academic Resource Center (ARC) provides students with the support, resources and opportunities to improve learning and succeed academically.



Consultations with students

The ARC provides individual and group consultations for students who have questions about their course material. There were 1,648 consultation visits in the fall semester, and 1,360 in the spring semester.

International Tutor Training Program Certification

The ARC's Course Assistant Training Program received ITTPC Level 1 certification to train student tutors according to College Reading and Learning Association (CRLA) standards. To become certified, course assistants must complete 10 hours of training and 25 hours of experience working with students.

Workshops for students

- Mapping your semester for balance and success
- How to become a critical reader
- Write your way out of writer's block
- How to read a math textbook
- Test-taking strategies and examining returned tests
- Forecast your QPA
- Making the most of the second half of the semester
- The art of revising your academic writing
- Strategies for virtual learning
- Get more from lectures and precepts
- Deciding what to study and how
- Crafting effective conclusions
- Overcoming procrastination
- Strategies for preparing for final exams



Library

The CMU-Q library built bridges between knowledge and community during the post-COVID return to campus.



New director

Tatiana Usova joined CMU-Q as the new director of the library. Usova previously served as associate director and interim director of the library at Georgetown University in Qatar.

Thematic book exhibitions

To introduce the community to traditions of the region, the library featured several thematic book exhibitions, including Great Comics of the Middle East, Qatar National Day, and Ramadan.

Diversity events

The library held events to promote diversity and understanding, including a workshop on researching Black history and two poetry events led by local poet **Sheikha Al-Khulaifi**.

International contributions

Jasmine Kirby presented her work on collaborating with undergraduates to create library instruction materials at the 8th Sharjah International Library Conference in the United Arab Emirates.

Tatiana Usova spoke on teaching data visualization at the Librarians' Information Literacy Annual Conference (LILAC) in Manchester, United Kingdom.

Community Engagement

We have strong, living connections to the global Carnegie Mellon community, Qatar Foundation, and our strategic partners in government and industry. These collaborations offer rich learning opportunities for our students as we help build Qatar's knowledge economy.

Collaborations with Qatar Foundation

We are an integral part of Qatar Foundation, and our students, faculty, alumni and staff work with entities across Education City to build a hub of learning, cooperation and discovery.

Stars of Science

Senior student **Mohammed Al-Qassabi** placed third in Stars of Science with his invention of an automatic football offside detector. Al-Qassabi was the youngest finalist, and the only one from Qatar, in the series' 13th season. An avid football player and fan, he invented the offside detector while a first-year student at CMU-Q.



U.S. Universities Arabic Debating Competition

Rahaf Abutarbush, Waad AlKhenji, Ammar Karkour and **Abdullah Shaar** were part of a QatarDebate contingent that competed at the U.S. Universities Arabic Debating Competition. The trip was part of the activities for the Year of Culture between the U.S. and Qatar.

Breaking the Bias

Selma Limam Mansar was part of a panel discussion on women building careers in academia. Hosted by Weill Cornell Medicine-Qatar, the event, titled 'Breaking the Bias: Stories from Academia,' featured expert speakers from several universities in Qatar.



Health advisory board

CMU-Q was an important part of the Qatar Foundation Health Advisory Board, working with the partner universities to manage community health and safety guidelines for COVID-19. This included collaborating with the QF-PHCC and QF Housing and Residence Life to ensure students were accessing the testing, vaccination and medical resources to stay healthy on campus.

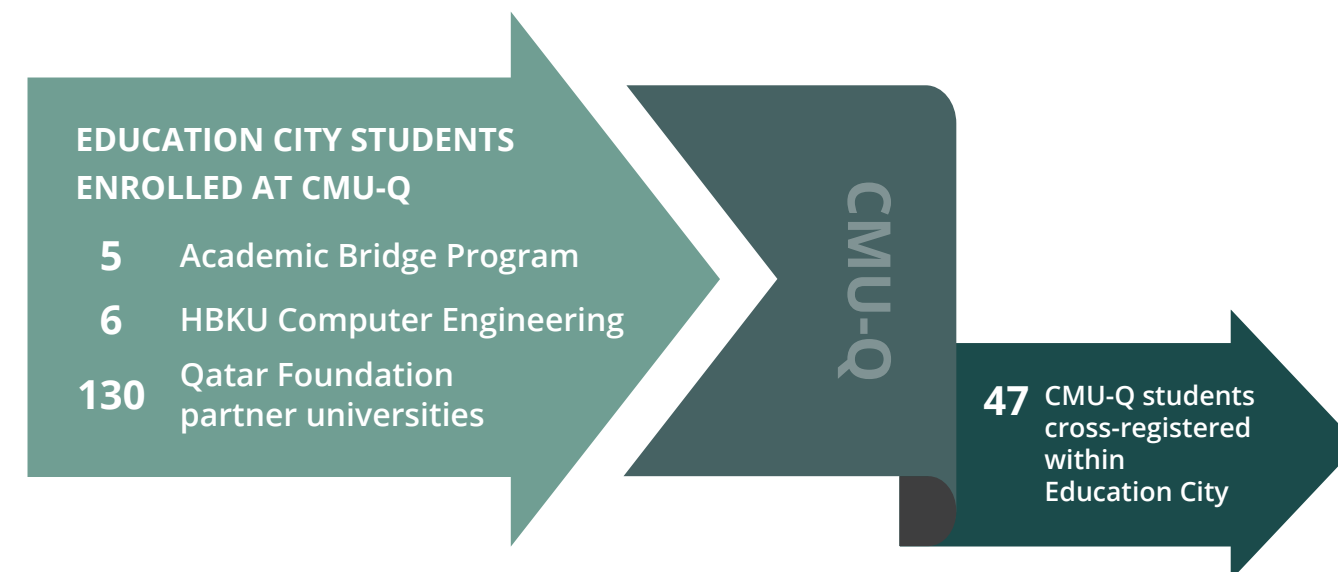
Donation drive for Afghans in Qatar

CMU-Q contributed to the Qatar Foundation volunteer drive for Afghan children who were evacuated to Doha. The CMU-Q community collected donations for clothing, toys and other supplies, and coordinated two visits of community members to spend time with the children.

Product X event

Nui Vatanasakdakul was a member of the organizing committee for PRODUCT X: Innovating for Future Economies Bootcamp, an Education City multiversity initiative. **Susan Hagan** served as a mentor.

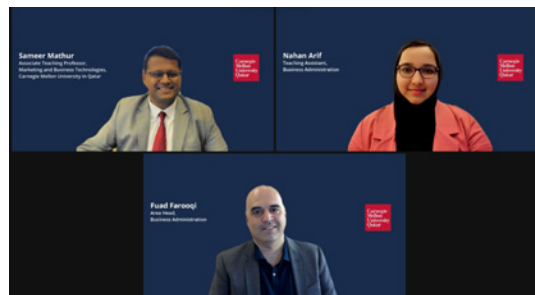
Education City cross-registration





Our Community Partners

We are proud to have strong, collaborative relationships within the Qatar community. Each year, we strive to strengthen the connections with our strategic partners, and reach to form new partnerships.



Community Partner Lectures

In its second year, the Community Partner Lecture Series featured discussions by CMU-Q faculty members on pressing topics in business and leadership. The lecture series is open to the wider Qatar community.

- The power of business analytics, **Sameer Mathur**
- Decision-making in uncertain times, **Agustín Indaco**
- Digital economy and central bank digital currencies, **Veli Safak**
- Password policies in an internationally diverse environment, **Ryan Riley**

Security guidelines for IPv6

The Communications Regulatory Authority and CMU-Q issued *Security Guidelines for Internet Protocol version 6 (IPv6)* to provide support to organizations in Qatar that are implementing IPv6 in their networks. Workshops were held to train information technology professionals on securing their IPv6 networks.



Hamad Bin Jassim Center

In the four years since its creation, the Hamad Bin Jassim Center for K-12 Computer Science Education has introduced more than 25,000 students to computing, and trained nearly 200 teachers.

MindCraft reaches 11,000 students

The MindCraft program reached a milestone in the 2021-22 academic year, reaching more than 11,000 students in Qatar since the workshops began. MindCraft workshops introduce the basic concepts of programming and computational thinking.



Code in Alice summer program

Pre-college students from around the world learned the fundamentals of programming through the new program, Code in Alice. The online program brought together volunteer teachers and students from a total of 25 countries on five continents. During the month-long course, nearly 200 students aged 13 to 18 learned basic programming skills using CMU's Alice educational software.

Alice Programming Competition

The seventh annual Alice Programming Competition for middle school and high school students featured final projects from 35 students. Teams from Al Khor International School and Al Arqam Academy took the top five spots.



Carnegie Mellon Connections

We are proud to be part of the Carnegie Mellon global community, connected to the scholarship, research, spirit and culture that defines Carnegie Mellon worldwide.

Panel on AI grand challenges

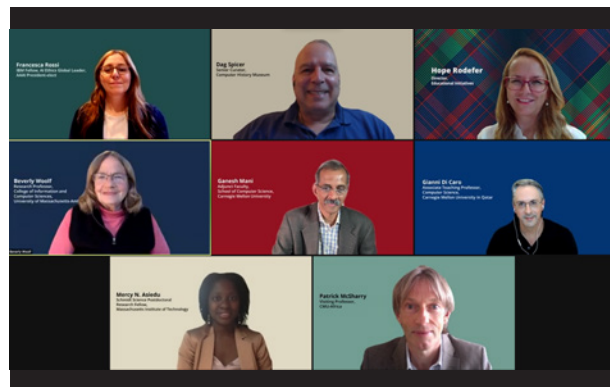
A CMU panel discussion delved into the grand challenges of Artificial Intelligence (AI). The session was moderated by **Ganesh Mani**, adjunct faculty at the School of Computer Science on CMU's main campus, who taught a micro course at CMU-Q. People from five continents tuned in to listen to the discussion.

The panel included:

Mercy Asiedu, Schmidt Science postdoctoral research fellow, Massachusetts Institute of Technology

Gianni Di Caro, associate teaching professor, computer science, CMU-Q

Patrick McSharry, visiting professor, CMU Africa



Francesca Rossi, IBM fellow, AI ethics global leader, AAAI president-elect

Dag Spicer, senior curator of the Computer History Museum

Beverly Woolf, research professor, College of Information and Computer Sciences, University of Massachusetts-Amherst

Global initiative

CMU-Q participated in Global, a program that brings students from CMU campuses around the world together virtually to connect and develop increased awareness and knowledge of other cultural perspectives.



Washington Semester Program

Four CMU-Q students participated in the Washington Semester Program during the academic year. Sponsored by CMU's Institute for Politics and Strategy, students in the program spend a semester interning and taking CMU classes in Washington, DC.

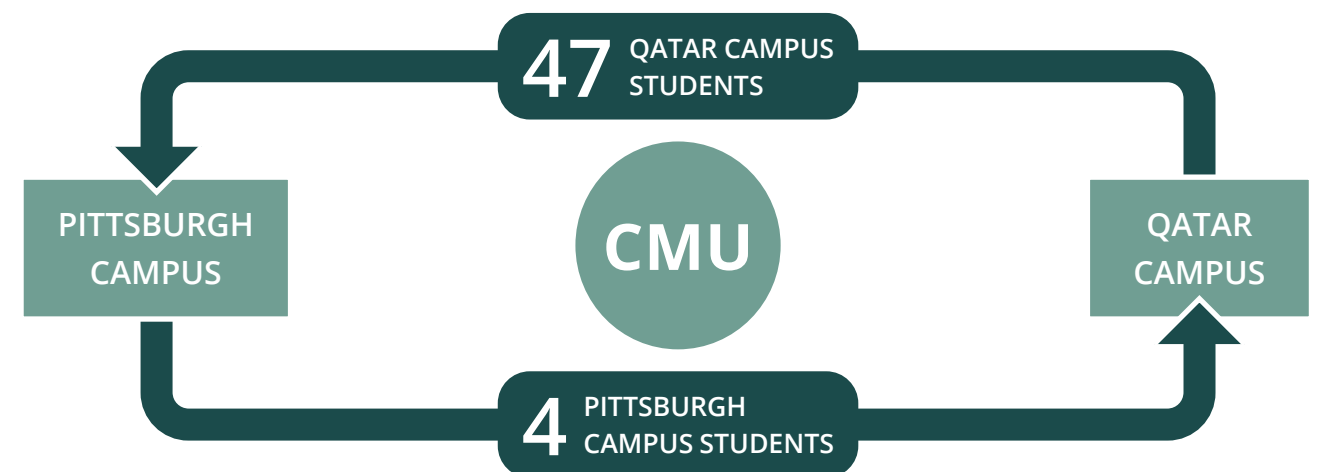
Study Abroad in Costa Rica

One CMU-Q student was part of the first experiential learning program in Costa Rica, a collaboration between CMU's Department of Modern Languages and the Monteverde Institute. Students learned about sustainability and environmental stewardship while learning Spanish and exploring the Costa Rican culture.

TCinGC Program

Two Qatar campus students travelled to Rwanda to participate in the CMU Technology Consulting in the Global Community Program. Since 2004, the program sends students into developing communities around the world to use their technical skills in a capacity-building consulting model.

Campus exchange





Diversity, Inclusion and Equity

At Carnegie Mellon University, the principles of diversity, inclusion and equity guide our values and serve as our foundation. The Qatar campus is committed to building a campus climate that embodies these principles.



Qatar elections and the role of women

CMU-Q hosted a panel discussion in advance of the first Shura Council elections in Qatar.

The panel included **Her Excellency Reem Al-Mansoori**, assistant undersecretary for digital society development at the Ministry of Communications and Information Technology, and **Dr. Amal Mohammed Al-Malki**, founding dean of the College of Humanities and Social Sciences, Hamad Bin Khalifa University. The discussion was moderated by alumna **Maryam Al-Naemi** (IS 2018).

UN International Day of Women and Girls in Science

CMU-Q hosted a webinar to commemorate the United Nations International Day of Women and Girls in Science. The panel discussed the role of female scientists as agents of change. The CMU-Q student club Women in STEM co-organized the webinar.



ADDvocates course

CMU-Q offered a new course for students titled ADDvocates: Anti-discrimination Dialogue for Social Justice. The multidisciplinary course delved into issues of diversity, equity and inclusion topics in Qatar and around the world, including the issues of discrimination, racism and bias.

Community Conversations

Community Conversations are held to provide a safe space for students, faculty and staff to share their experiences and perspectives. Five sessions were held on the topics of self-censorship, the Afghanistan refugee crisis, the war in Ukraine, the COVID-19 Omicron wave, and International Women's Day.

Select workshops, initiatives and training

- ADD Advocates course
- Bias Busters
- Bias mitigation, faculty search process
- Book discussion, *Caste: Origins of our Discontent*
- Book discussion, *Invisible Women: Data Bias in a World Designed for Men*
- Community Conversations
- Diversity Dialogues
- Diversity, Equity, Inclusion and Belonging
- Karak Konnections
- Proactive Practices
- Teaching with Intention
- Title IX

Student Experience

Throughout their undergraduate education, we encourage our students to come together, explore their interests, and develop the skills of leadership and teamwork. Together, students create opportunities to grow as individuals, and as a community.

A Strong, Connected Community

Our campus is a unique place to study: students, alumni, faculty and staff form a close-knit, diverse community that is enthusiastic, supportive and energizing.



Qatar National Day celebration

The Qatari Student Association hosted an afternoon of activities celebrating Qatari culture, including a henna station, sword dancing, and traditional games.

Scottyville

The student community organized Scottyville, a carnival to celebrate the Tartan spirit within the pandemic guidelines. The evening included a variety of student-led games, activities and performances.

Education City sports

Sports in Education City resumed as pandemic-related restrictions began to lift. The CMU-Q cricket team won first place in the Education City-wide tournament, and the CMU-Q football team placed third.

Karak Konnections

Karak Konnections pairs members of the community together each week for a cup of coffee. The initiative encourages students, faculty and staff to make connections with people outside of their immediate circles. During the year, 97 Karak Konnections took place.

International Night

The International Night event was a student-led celebration of the cultural diversity at CMU-Q. Students in the 2021-22 academic year come from 53 countries on five continents.



Student lounge dedicated to Ilona Weyers

CMU-Q formally dedicated a space in the building to Ilona Weyers, the late wife of Dean Michael Trick. The plaque naming the space the Ilona Weyers Student Lounge is from Qatar Foundation.

Ilona was a frequent visitor on campus, attending community events large and small. She particularly enjoyed getting to know the students and the Student Affairs lounge was one of her favorite places on campus. Ilona passed away in December 2020.



Peer to Peer Learning

Discovery and exploration are at the heart of the CMU-Q experience, and students have many opportunities to share their knowledge and talent with their peers.



New student orientation

Orientation Week for the Class of 2025 was organized by an extensive team of 59 students. The first-year students were welcomed in person for sessions in academics, student life and campus resources.

EcoCampus initiative

The EcoCampus initiative addressed participation in recycling on campus. The team surveyed community members about their knowledge of and barriers to recycling, and measured daily contamination in the building's recycling bins. The team then led an intervention campaign to raise awareness of recycling. The data will guide EcoCampus efforts moving forward.

DC Advocates

Diversity and Climate Advocates is a student group dedicated to educating, engaging and inspiring their peers to embrace diversity, inclusion and anti-bias behavior. During the year, the group led initiatives on gender-based violence, Black History Month, identity representation and women in science.

Tartan Bridge Buddies

Tartan Bridge Buddies matches incoming students with their upperclass peers. In fall 2021, 34 upperclass students volunteered to assist new students as they began the university experience.

Undergraduate course assistants

Course assistants are an essential part of the learning team at CMU-Q. Undergraduates who have excelled in specific courses can become a course assistant in later years, working with faculty and the Academic Resource Center to support student learning. There were 50 CAs in the fall semester, and 82 in the spring semester.

Outstanding Course Assistant award

Each year, the Outstanding Course Assistant award recognizes a student who has made an exceptional contribution to student learning. This year's award went to business administration student **Ihsane Sadiki**.

StuCo program

The Student-taught Courses (StuCo) program offers students the opportunity to design and deliver a unique course to their peers. Students who are selected receive training and resources, including guidance on course design, syllabus writing, and teaching. This year students delivered courses in:

- After school art
- The big leagues: Marvel vs. DC
- Comp bio scene investigation
- The evolution and impact of fashion trends in the Middle East
- Exploring sexism on the silver screen
- Injustice in the Middle East beyond Instagram
- Inside the mind of a serial killer
- Toolkit of a computational biologist



Leadership and Career Development

As students follow their interests and passions outside of the classroom, they develop critical skills and experience for their future careers. Students learn how to work in teams, organize and lead groups, present their work in a professional setting, and network with potential employers.



Arabic National Debate Championships

Rahaf Abutarbush, Ammar Karkour and Abdullah Shaar won the QatarDebate Arabic National Universities Debating Championship, with all three debaters placing in the top ten speakers of both the tournament and championship. This is the second consecutive year the team has won the Qatar national championship, and the second consecutive year that Shaar won best speaker.

CMBA fashion show

The students in the Carnegie Mellon Business Association hosted a career-wear fashion show for all students at CMU-Q.



Education City Job Fair

CMU-Q was part of the organizing committee for the Education City Job Fair. More than 500 students and 76 employers attended the two-day event. The Education City community also collaborated to produce a book of student resumes for the event, a project that started at CMU-Q.

Employer sessions

CMU-Q welcomed employers at 14 virtual and in-person events to share information and opportunities with students. Sessions included a technology-focused career networking event, as well as individual presentations by employers in Qatar.

Senior Leadership Awards

Rahaf Abutarbush	Nour Mohamed
Mohammed Al-Qassabi (with distinction)	Arambha Niraula
Yara Alshakhs	Đorđe Popović (with distinction)
Mubarak Al-Sulaiti	Ayah Salameh (with distinction)
Fatima El-Sallabi (with distinction)	

38
STUDENT CLUBS
AND
ORGANIZATIONS

9
ACADEMIC

8
CULTURAL

3
SERVICE

12
SPECIAL INTEREST

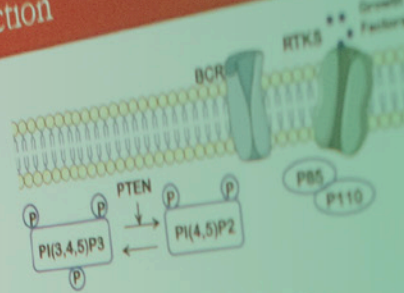
6
SPORTS

Research

We have strong, living connections to the global Carnegie Mellon community, Qatar Foundation, and our strategic partners in government and industry. These collaborations offer rich learning opportunities for our students as we help build Qatar's knowledge economy.

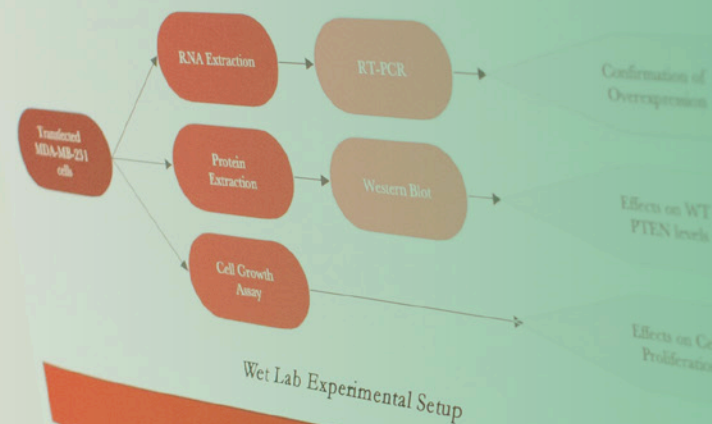
Introduction

- PTEN is a tumor suppressor through modulating the Akt/PKB pathway^[2], which leads to less growth signal transduction.
- Cancer lines typically have decreased PTEN activity, leading to unchecked growth^[3].
- PTEN 1st intron is a minor intron, which are inefficiently spliced in breast cancer^[4].
- A mis-spliced PTEN RNA product was observed by the iY Lab composed of PTEN's 1st exon + a portion of the 1st intron with full mRNA processing.



PTEN Regulation of Akt Pathway^[2]

Experimental Design



Results



Conclusions

The Year in Faculty Research

CMU-Q researchers are active members of the research community in Qatar and around the world. Faculty members contribute to the engines that drive international research, including scholarly publications, professional organizations and academic conferences.



Zeinab Ibrahim



Houda Bouamor

Qatar linguistic map

Faculty members **Zeinab Ibrahim** and **Houda Bouamor** are leading a project to explore and map the Qatari dialect. The project is funded by Qatar National Research Fund and includes principal investigators from Doha International Family Institute and Georgetown University in Qatar.

Forum on wastewater monitoring in Qatar

CMU-Q held a forum to discuss new ways to monitor wastewater in Qatar. The forum was a part of a CMU-Q research project funded by Qatar National Research Fund. Speakers included lead principal investigator **Annette Vincent**, as well as principal investigator **Basem Shomar** from Qatar University, **Hussein Abu Halaweh** from Ashghal, and CMU-Q research assistant **Ramya Ramadoss**.

New seed research projects

CMU-Q seed research funding supports long-term faculty members as they build impactful research projects for Qatar and the world.

- MERCATOR: AI-driven distributed planning and control for adaptive information gathering and data mapping using cooperative robot swarms, **Gianni Di Caro**
- Publishing undergraduate research: Multidisciplinary audiences, mentorship, and inclusive practice, **Kira Dreher**
- Antibiotic adjuvants – A synergistic study of berberine with flavonoids, **Simon Faulkner**
- Using data and econometrics to improve football training sessions and predict injuries, **Agustín Indaco**
- Citizenship lessons in educational spaces: Teaching history and civic duties to young South Asians in Qatar, **Deepa Nair**
- Cognition and emotions in consumer behavior, **Varun Sharma**
- The heuristics of affliction: Understanding suffering in premodern England, 1550-1650, **Jeffrey Squires**

New international research community collaborations

Houda Bouamor served as associate editor for *ACM Transactions on Asian and Low-Resource Language Information Processing*. She also was a co-organizer for the Fourth Financial Narrative Processing Workshop, the First Workshop on Natural Language Processing for Political Sciences, and she serves on the advisory board of the SIGARAB, the special interest group of the Association for Computational Linguistics for researchers in Arabic language processing.

Kira Dreher was elected to the Board of Governors for the IEEE Professional Communication Society.

Kemal Oflazer served as action editor for the *Association for Computational Linguistics Rolling Review*, and delivered multi-day tutorial sessions in natural language processing to Turkish Avionics Industries in Ankara.

FACULTY RESEARCH BY THE NUMBERS

3
BOOKS

6
BOOK
CHAPTERS

30
ACADEMIC
JOURNAL ARTICLES

44
CONFERENCE
PRESENTATIONS
AND TALKS



QNRF-Funded Projects

For more than a decade, CMU-Q has been proud to contribute to the Qatar National Vision 2030 through Qatar National Research Fund’s many programs.

New faculty projects

Greenhouse-5.0: AI robotics for automated data collection, analytics, and decision support in greenhouse farming
Lead PI: **Gianni Di Caro**
Subaward partners:
PI: **Ahmed Moustafa**, Al Sulaiteen Agricultural Research, Study and Training Center
PI: **Klaas Dijkstra**, NHL Stenden
PI: **Antonio Ferrante**, Università degli Studi di Milano

Dimension-specific automated scoring of Arabic language writing proficiency
PI: **Houda Bouamor**
Subaward partners:
Lead PI: **Tamer Elsayed**, Qatar University
PI: **Walid Massoud**, Qatar University

Autonomous PV cleaning and inspection system for hot desert weather conditions
PI: **Eduardo Feo Flushing**
PI: **Gianni Di Caro**
Subaward partners:
Lead PI: **Zhaohui Cen**, HBKU
PI: **Antonio Sanfilippo**, HBKU
PI: **Ben Figgis**, HBKU
PI: **Damien Cosme**, TOTAL E&P Golfe Ltd
PI: **Yuzhe Chen**, Phoenix Contracting & Trading Co.
PI: **Syed Nawaz Pasha**, Phoenix Contracting & Trading Co
PI: **Nizzam Uddin**, Singapore Engineering & Contracting WLL
PI: **Mansour Karkoub**, Texas A&M University at Qatar



Gianni Di Caro



Houda Bouamor



Eduardo Feo Flushing

Ongoing faculty projects

Sub-project 6: Assessing baseline sustainability literacy and awareness of SDGs and develop and test interventions. Part of SDG education and global citizenship in Qatar: Enhancing Qatar’s nested power in the global arena
Sub-project Lead PI: **Jennifer Bruder**
Subaward partner:
NPRP-Cluster Project Director: **Evren Tok**, HBKU

Resources and applications for detecting and classifying polarized and hate speech in Arabic social media
PI: **Anis Charfi**
Subaward partners:
Lead PI: **Wajdi Zaghouani**, HBKU
PI: **George Mikros**, HBKU
PI: **Marc Jones**, HBKU
PI: **Georgios Dimitropoulos**, HBKU
PI: **Fadi Makki**, Supreme Committee for Delivery and Legacy
PI: **Paolo Rosso**, Universitat Politècnica de València
PI: **Joe Cannataci**, University of Groningen
PI: **Aitana Radu**, University of Malá

Teams of aquatic/aerial robots for marine environmental monitoring (TAREM)
Lead PI: **Gianni Di Caro**
Subaward partners:
PI: **Enrico Simetti**, University of Genova
PI: **Filippo Arrichiello**, University of Cassino and Southern Lazio

FemtoQclouds: Leveraging edge resources to enable personalized and federated deep learning for mHealth applications
Faculty Mentor: **Khaled Harras**
Postdoctoral Researcher: **Hend Gedawy**

Qatari Linguistic Map
Lead PI: **Zeinab Ibrahim**
PI: **Houda Bouamor**
Subaward partners:
PI: **Mohamed Mahgoub**, Doha International Family Institute
PI: **Aisha Sultan**, Doha International Family Institute
PI: **Hany Abdelrhem**, Georgetown University in Qatar

Bringing computer science to secondary schools – Curriculum design and implementation
Lead PI: **Saqib Razak**

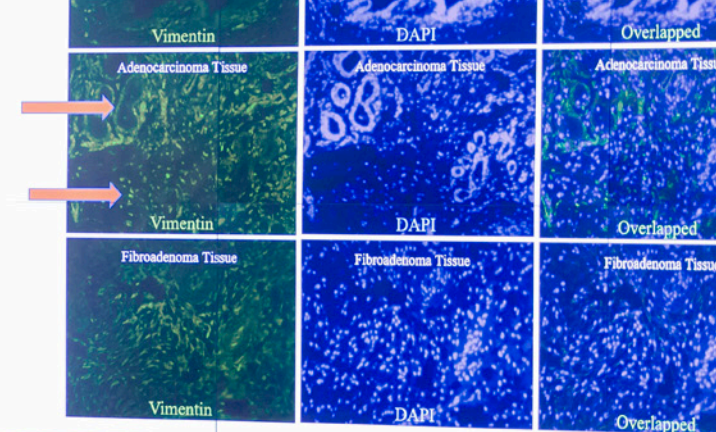
Sustainable bioplastics production from industrial wastewaters using photosynthetic microbial production of polyhydroxyalkanoates (PHAs)
PI: **Annette Vincent**
Subaward partner:
Lead PI: **Hamish Robert Mackey**, HBKU
PI: **Albert Liberski**, HBKU
PI: **Adriaan Luyt**, Qatar University
PI: **Mabrouk Querderni**, Qatar Petrochemical Company

Biological conversion of fuel synthesis process water to single cell protein for aquaculture feed using purple phototrophic bacteria
PI: **Annette Vincent**
Subaward partners:
Lead PI: **Hamish Robert Mackey**, HBKU
PI: **Prasanna Kolkatar**, Qatar Biomedical Research Institute, HBKU
PI: **Udeogu Onsuwogh**, Qatar Shell Research and Technology Centre
PI: **Xue Zhang**, Institute of Hydrobiology, Chinese Academy of Sciences
PI: **Haokun Liu**, Institute of Hydrobiology, Chinese Academy of Sciences

Using bacteriophages as biomonitoring tools for water quality measurements
Lead PI: **Annette Vincent**
PI: **Valentin Ilyin**
Subaward partner:
PI: **Basem Shomar**, Qatar Environment and Energy Research Institute, HBKU

Molecular profiling of breast cancer transcriptome and splicing aberrations
Lead PI: **Ihab Younis**

Student Research



Through research projects, students develop the skills of intellectual rigor and creative problem solving that are integral to their careers and future studies.

Frontiers in Psychology

A paper on awareness and attitudes in Qatar toward threatened animal species was published in *Frontiers in Psychology*. Co-authors of the paper included four student researchers: **Reem Al-Haddad**, **Sara Al-Hemaidi**, **Amal Al-Korbi** and **Almayasa Al-Naimi**. The project was funded by Qatar National Research Fund's Undergraduate Research Experience Program.

Best paper, FinNLP 2021

The research of **Samir Abdaljalil**, a 2021 information systems graduate, received the Best Paper award at the Financial Technology and Natural Language Processing (FinNLP 2021) workshop. Under the supervision of faculty adviser **Houda Bouamor**, Abdaljalil conducted the research for his senior honors thesis.

"I want to nurture my students' research skills and show them, you can spend your career working on questions that fascinate you."

Houda Bouamor
Associate Teaching Professor,
Information Systems

International workshop presentation

Students **Laila El-Beheiry** and **Ammar Karkour** presented their research at the 2021 Logical Frameworks and Meta-Languages: Theory and Practice (LFMTP 2021) workshop. The paper was one of only six selected for the workshop. **Giselle Reis** served as faculty advisor.



CEITEC research internship

Peiyun Ju, a biological sciences junior, was accepted at the Central European Institute of Technology in Czech Republic for a summer research internship in biological sciences.

Scientific Reports

Student **Moza Al-Shukri** was the second author on an article published in *Scientific Reports* titled, "Substantiation of propitious 'Enzybiotic' from two novel bacteriophages isolated from a wastewater treatment plant in Qatar."

SPLASH 2021 workshop

Computer science student **Samar Rahmouni** received a scholarship to attend the SPLASH 2021 Programming Languages Mentoring Workshop in Chicago. The workshop encourages graduate and senior undergraduate students to pursue research in programming languages.

Summer Undergraduate Research Apprenticeship

Nine students participated in SURA 2022, a program to engage students in research after their first or second year at CMU-Q. SURA students gain practical experience and learn to define research questions, define their techniques and set out specific objectives.



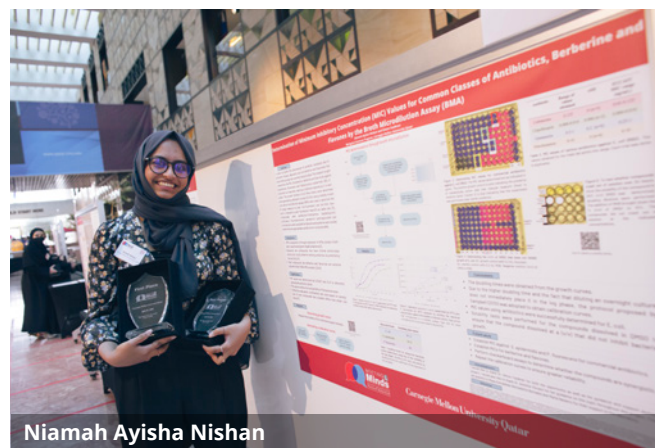
Meeting of the Minds

The Meeting of the Minds research symposium took place in person for the first time since 2019, featuring nearly four dozen research projects by CMU-Q students and researchers.

Awards

Best Project and Best Poster

Niamah Ayisha Nishan, Determination of minimum inhibitory concentration (MIC) values for common classes of antibiotics, berberine and flavones by the broth microdilution assay (BMA)
Faculty Advisor: **Simon Faulkner**



Best Project, 2nd place

Dorđe Popović, Alternative splicing and the phenotypes of different breast cancer subtypes
Faculty Advisor: **Ihab Younis**



Best Project, 3rd place

Dorđe Popović, FedTeams: Towards trust-based and resource-aware federated learning
Faculty Advisor: **Khaled Harras**

Planning and Statistics Authority Awards

Lulwa Alhaddad, Exploring phenotypic changes in breast cancer cells by MAPK14 minor intron splicing
Faculty Advisor: **Ihab Younis**

Nour Mohamed, Is the future female? A study on educational attainment and economic development
Faculty Advisor: **Agustín Indaco**

Waad AlKhenji, Nayla Al Mulla, Maryam Fakhroo, Does imagination reduce false memory?
Faculty Advisor: **Ekaterini Klepousniotou**

Gulnaz Serikbay, Yusuf Saquib, Sniffing Bluetooth low energy
Faculty Advisor: **Ryan Riley**

Ammar Karkour, Combining deep learning and bootstrapped few-shot learning for adaptive out-of-sample crowd counting
Faculty Advisor: **Gianni Di Caro**

Qatar National Research Fund Awards

Maryam Aslam, How does the extracellular matrix influence cancer cell behavior
Faculty Advisor: **Mohamed Bouaouina**

Ammar Karkour, Combining deep learning and bootstrapped few-shot learning for adaptive out-of-sample crowd counting
Faculty Advisor: **Gianni Di Caro**

Shahrazad El Natsheh, Identification of alternative splicing patterns in diabetic patients
Faculty Advisor: **Ihab Younis**

“At Carnegie Mellon, our mission is to investigate questions that will have a real impact on the world. Each of these student researchers can answer the question, “why does your research matter?” and I think this is a hallmark of Carnegie Mellon’s approach.”

Michael Trick
Dean

Carnegie Mellon University Qatar

Congratulations

Class
DISMISSED

our Stories

Through a variety of media channels, we share the milestones and achievements of the CMU-Q community. We believe the success stories of our students, alumni and faculty are part of the larger story of Qatar's transformation into a knowledge-based economy. We also hope to inspire a new generation of students to imagine and deliver work that matters, both to Qatar and the world.



Public Relations

Through targeted campaigns, we reached out to the Qatar community, connected with prospective students, and raised awareness of our talented graduates with potential employers.

Traditional media

CMU-Q received a total of 1,070 mentions in traditional media last year, 86% of which were online and 14% in print. The media included local, regional and international outlets, with the highest number in Qatar, followed by Jordan and the United States.



Broadcast media

Carnegie Mellon Qatar stories were featured in nine radio news reports throughout the year, with faculty and staff experts speaking on a wide range of topics. Graduates from the Class of 2022 were featured in radio and television interviews to celebrate their achievements.

Digital channels

CMU-Q extended its digital footprint through targeted websites, including the digital *Annual Report* and the new alumni showcase, *Work That Matters*. Social media continued to drive website traffic, including targeted campaigns during the application cycle.



PUBLIC RELATIONS BY THE NUMBERS

70

NEWS STORIES

247

ZOOM AND IN-PERSON
EVENTS SUPPORTED

165,000

VISITORS TO WWW.QATAR.CMU.EDU

143

TWEETS

227

INSTAGRAM POSTS

115,000

YOUTUBE VIEWS

100,000+

ENGAGEMENTS ACROSS FACEBOOK,
TWITTER, INSTAGRAM AND LINKEDIN



The Year in the News

■ Website Story

Carnegie Mellon Qatar welcomes new faculty

[illegible]

Record number of students apply for Carnegie Mellon 'Early Decision'

[illegible]

February 2022

Carnegie Mellon grads launch Qatar gardening app	
Carnegie Mellon panel will celebrate female scientists as agents of change	
Carnegie Mellon and Hamad Bin Jassim Center	

March 2022

Carnegie Mellon hosts 7th annual Alice Programming Competition	
Student research explores link between women’s education, economic growth	
CMU-Q explores Qatari dialects, draws interactive map to preserve heritage	
Carnegie Mellon student wins best creative idea at Healthcon 2022	
CMU-Q startup receives grant from Bill and Melinda Gates Foundation	
Carnegie Mellon Qatar celebrates Dean’s List, Fall 2021	
Student lounge officially dedicated to Ilona Weyers	
CMU-Q students place second at Invent for the Planet 2022	

April 2022

Alumni startup raises \$11 million in Series A funding	
CMU-Q faculty member offers career insights at Royal Thai Embassy in Doha	
Carnegie Mellon, CRA workshops provide key IPv6 security training	
Seventh annual Summer Edge Program will provide new students with skills, confidence	
CMU-Q alum startup receives Most Valuable Innovation Response to COVID-19 award	
Class of 2022 is resilient, determined	
CMU-Q deans receive ESGR Patriot Award	
CMU-Q’s Waad AlKhenji: I want to do something important for my country	

صممه خريجون من كارنيجي ميلون في قطر
إطلاق تطبيق لمحبي الزراعة في قطر



تعاون ثلاثة خريجين من جامعة كارنيجي ميلون في قطر إحدى الجامعات الأميركية المؤسسة في قطر للتربية والتعليم وتسمية التطبيق في إنشاء تطبيق خاص لهم الزراعة وفي قطر. التطبيق هو من تطويرهم وهو تطبيق تعليمي وتوعوي، يهدف إلى زيادة الوعي بالزراعة في قطر، وتوفير معلومات عن الزراعة في قطر، وتقديم نصائح للمزارعين في قطر. التطبيق متاح على متجر Google Play و App Store.

فريق من جامعة كارنيجي ميلون يعمل في المهمة
رسم خريطة تفاعلية لحفظ اللهجات القطرية للأجيال القادمة



فريق من جامعة كارنيجي ميلون يعمل في المهمة رسم خريطة تفاعلية لحفظ اللهجات القطرية للأجيال القادمة. الفريق يعمل على تطوير تطبيق تفاعلي يسمح للمستخدمين بتسجيل وتوثيق اللهجات القطرية المختلفة، مما يساهم في الحفاظ على التراث اللغوي والثقافي للقطريين. التطبيق متاح على متجر Google Play و App Store.

CMU-Q startup gets grant from Gates Foundation



CMU-Q startup gets grant from Gates Foundation. The startup, which focuses on developing sustainable technologies, has received a grant from the Bill and Melinda Gates Foundation to support its research and development efforts. The grant will be used to fund the startup's operations and to support its team of researchers and engineers.

Carnegie Mellon Qatar mourns Professor Milton Cofield

CMU-Q Senior Honors ceremony recognizes excellence in academics, research, leadership

Carnegie Mellon hosts Marhaba Tartans for newly admitted students

Carnegie Mellon grad inspired by professors to pursue career in academia

Carnegie Mellon students win national Arabic debate championship

May 2022

Graduating students present research projects at College Honors 2022	
Carnegie Mellon celebrates three graduating classes	
Carnegie Mellon graduates aim to serve the community	
Student research into antibiotic resistance wins Carnegie Mellon symposium	
Gulf Times: Graduate combines passion for sports, technology	
Gulf-Times: CMU-Q’s Selma Limam Mansar speaks at Breaking the Bias	
Carnegie Mellon team creates three-year computer science curriculum	
Abdullah Shaar: Faculty support was key to achieving dual degrees	
Entrepreneur ME on CMU-Q alumni startup Stellic	
CMU-Q graduate named runner-up for School of Computer Science award	
CMU Qatar students spend semester in Pittsburgh	
Class of 2022’s Sara Hussein: I took every opportunity I could get	

June 2022

CMU-Q graduate Mubarak Al-Sulaiti: This campus is so inspiring	
Carnegie Mellon’s MindCraft introduces computer science to more than 11,000 students in Qatar	
CMU-Q graduate wins MCS Gilman Award	
Reviving Modern Standard Arabic can unify the Arab world	

CMU-Q students win national Arabic debate championship



CMU-Q students win national Arabic debate championship. The team of students from Carnegie Mellon Qatar won the national championship in Arabic debate, showcasing their exceptional skills and knowledge in the field. The victory was a significant achievement for the team and a source of pride for the university.

كارنيجي ميلون تحتفل بخريج 266 طالباً وطالبة



كارنيجي ميلون تحتفل بخريج 266 طالباً وطالبة. The university celebrated the graduation of 266 students, marking a significant milestone in its history. The ceremony was held in a grand hall, and the graduates were honored with diplomas and awards. The event was attended by faculty members, family, and friends, creating a memorable occasion for all involved.



our Faculty Leadership Partners



Advisory and Leadership

Joint Advisory Board

Qatar Foundation members

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Es'hailSat, The Qatar Satellite Company

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H.E. Mrs. Reem Al Mansoori
Assistant Undersecretary,
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Ministry of Communications and
Information Technology

Ahmed Elmagarmid
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Hamad Bin Khalifa University

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Mary Jo Dively
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Carnegie Mellon University in Qatar

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Richard Mundy
Chief Operations Officer
Carnegie Mellon University in Qatar

Dean's Office

Michael Trick
Dean
Harry B. and James H. Higgins
Professor of Operations Research

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Teaching Professor, Information Systems

Dudley Reynolds
Senior Associate Dean, Education
Teaching Professor, English

Annette Vincent
Associate Dean, Diversity and Climate
Associate Teaching Professor, Biological Sciences

Fadhel Annan
Associate Dean, Government and Corporate Affairs

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Associate Area Head, Biological Sciences
Associate Teaching Professor, Biological Sciences

Fuad Farooqi
Area Head, Business Administration
Associate Teaching Professor, Finance

Khaled Harras
Area Head, Computer Science
Teaching Professor, Computer Science

Patrick McGinnis
Associate Area Head, Business Administration
Distinguished Career Professor,
Business Communication

Marion Oliver
Area Co-Head, Arts and Sciences
Teaching Professor, Mathematics

Silvia Pessoa
Area Co-Head, Arts and Sciences
Teaching Professor, English

Renee Camerlengo
Associate Dean, Student Affairs
and International Education

Edna Jackson
Director, Dean's Office

Richard Mundy
Chief Operations Officer

Kara Nesimiuk
Executive Director, Marketing and Public Relations

Khalid Sarwar Warraich
Chief Information Officer

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Area Head, Information Systems
Associate Teaching Professor, Information Systems

Saqib Razak
Associate Area Head, Computer Science
Associate Teaching Professor, Computer Science

Ihab Younis
Area Head, Biological Sciences
Associate Teaching Professor, Biological Sciences



Faculty Members

Iman Adeinat

Assistant Teaching Professor,
Operations Management

Nesrine Affara

Assistant Teaching Professor,
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Serkan Akgüç

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Finance

Chadi Aoun

Associate Teaching Professor,
Information Systems

Ravichandra Bachu

Assistant Teaching Professor,
Chemistry

Houda Bouamor

Assistant Teaching Professor,
Information Systems

Mohamed Bouaouina

Associate Area Head,
Biological Sciences
Associate Teaching Professor,
Biological Sciences

Jennifer Bruder

Associate Teaching Professor,
Psychology

Anis Charfi

Associate Teaching Professor,
Information Systems

Milton Cofield

Distinguished Service Professor,
Business Management

Hasan Demirkoparan

Teaching Professor,
Mathematics

Gianni Di Caro

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Computer Science

Kira Dreher

Assistant Teaching Professor,
English

Fuad Farooqi

Area Head, Business
Administration
Associate Teaching
Professor, Finance

Simon Faulkner

Assistant Teaching Professor,
Chemistry

Eduardo Feo Flushing

Visiting Assistant
Teaching Professor,
Computer Science

María Pía Gómez-Laich

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English

Susan Hagan

Associate Teaching Professor,
Information Systems

Mohammad Hammoud

Associate Teaching Professor,
Computer Science

Khaled Harras

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Teaching Professor,
Computer Science

Erik Helin

Special Lecturer, Spanish

Zeinab Ibrahim

Teaching Professor,
Arabic Studies

Agustín Indaco

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Economics

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Mathematics

Jasmine Kirby

Instruction and
Engagement Librarian

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Deepa Nair

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Accounting and
Experimental Economics

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Teaching Professor, Mathematics

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Harry B. and James H. Higgins
Professor of Operations Research

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Nui Vatanasakdakul

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and Climate
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Ihab Younis

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Associate Teaching Professor,
Biological Sciences

Mohamed Zayed

Associate Teaching Professor,
Physics



Community Partners

Carnegie Mellon has built relationships with companies and organizations across various sectors. Our partners work closely with us by speaking through our Career Development Office, providing internships and jobs, participating in Community Partner Workshops, sponsoring students, sponsoring events and strengthening ties through Memoranda of Understanding.

- AbuIssa Holding
- Al Emadi Enterprises
- Al Faisal Holding
- Al Jazeera Media Network
- AlFaisal Without Borders Foundation
- Alfardan Group
- Ali Bin Ali Group
- Amiri Diwan
- Aspire Zone Foundation
- Bain & Company
- Barzan Holdings
- beIN MEDIA GROUP
- Boeing
- Boston Consulting Group
- Canon
- Careem
- Center for GIS Qatar
- Cisco
- Citi Bank
- Coca-Cola
- Commercial Bank of Qatar
- Communications Regulatory Authority

- Cosette Solutions
- Council of Ministers
- Credit Suisse Bank
- Darwish Holding
- Davidson Consulting
- Deloitte
- DHL
- Digital Incubation Center
- EBLA Computer Consultancy Company
- EButler
- Education Above All
- Education USA
- Embassy of Belgium in Qatar
- Embassy of Canada to Qatar
- Embassy of France, Doha
- Embassy of Italy in Doha
- Embassy of the Republic of Serbia
- Embassy of the State of Kuwait
- Equine Veterinary Medical Center
- ExxonMobil Qatar
- EY
- GE

- Georgetown University in Qatar
- German Embassy in Doha
- Gulf Bridge International
- Gulf Business Machines
- Gulf Organization for Industrial Consulting
- Hamad Bin Khalifa University
- Hamad Medical Corporation
- Henkel
- Hilti
- Hochtief Vicon
- INJAZ Qatar
- Internal Security Force (Lekhwiya)
- Intesa Sanpaolo
- Investment Promotion Agency Qatar
- Jassim and Hamad Bin Jassim Charitable Foundation
- Katara Cultural Village
- Kearney
- KPMG
- Mada - Assistive Technology Center Qatar
- Malomatia
- Masraf Al Rayan
- Marzooq Al Shamlan
- Mazars
- Mazaya Qatar
- McKinsey & Company
- Meddy
- Medihealth Solutions At-Home-Doc
- Microsoft
- Ministry of Labour
- Ministry of Commerce and Industry
- Ministry of Defense
- Ministry of Education and Higher Education
- Ministry of Finance
- Ministry of Foreign Affairs
- Ministry of Interior
- Ministry of Municipality
- Ministry of Communications and Information Technology
- Modaris
- Msheireb Properties
- Nakilat
- National Center for Cancer Care and Research
- Nestlé
- Northwestern University in Qatar
- Oliver Wyman
- Olympic Stars
- Omani Embassy in Doha, Qatar
- One Foods
- Ooredoo
- Oryx GTL
- Planning and Statistics Authority
- Power International Holding
- PwC
- Qatar Airways
- Qatar Armed Forces
- Qatar Biobank
- Qatar Biomedical Research Institute
- Qatar Business Incubation Center
- Qatar Cancer Society
- Qatar Central Bank

- Qatar Chemical Company Ltd (Q-Chem)
- Qatar Computing Research Institute
- Qatar Credit Bureau
- Qatar Development Bank
- Qatar Electricity & Water Co.
- QatarEnergy
- Qatar Environment and Energy Research Institute
- Qatar Fertilizer Company
- Qatar Finance and Business Academy
- Qatar Financial Center
- Qatar Financial Center Regulatory Authority
- Qatar First Bank
- Qatar Foundation
- Qatar Fuel (WOQOD)
- Qatar Investment Authority
- Qatar Mobility Innovation Center
- Qatar Museums
- Qatar National Bank
- Qatar National Research Fund
- Qatar Olympic Committee
- Qatar Petrochemical Company (QAPCO)
- Qatar Research, Development and Innovation Council
- Qatar Science and Technology Park
- Qatar Shell
- Qatar Solar Technologies
- Qatar Stock Exchange
- Qatar University
- Qatar Gas
- QInvest
- QLife Pharma
- Queen Hospital
- Regency Group Holding
- Rheinmetall Barzan Advanced Technology
- Roland Berger
- Salam Technology
- Saleh Hamad Al Mana Co.
- SAP
- SDK Marketing
- Sidra Medicine
- Siemens Qatar
- Silatech
- Snoonu
- Social and Sport Contribution Fund (Daam)
- STA Enterprises
- Standard Chartered
- State Audit Bureau
- Supreme Committee for Delivery and Legacy
- Supreme Council for Economy and Investment
- Talabat
- Teach For Qatar
- TESOL International Association
- Texas A&M University at Qatar
- Trio Investment
- U.S. Embassy in Qatar
- VCUarts Qatar
- Vodafone Qatar
- Weill Cornell Medicine—Qatar
- World Innovation Summit for Education (WISE)
- Zomato



About Carnegie Mellon University in Qatar

For more than a century, Carnegie Mellon University has challenged the curious and passionate to imagine and deliver work that matters. A private, top-ranked and global university, Carnegie Mellon sets its own course with programs that inspire creativity and collaboration.

In 2004, Carnegie Mellon and Qatar Foundation began a partnership to deliver select programs that will contribute to the long-term development of Qatar. Today, Carnegie Mellon Qatar offers undergraduate programs in biological sciences, business administration, computer science, and information systems.

Graduates from CMU-Q are pursuing their careers in top organizations within Qatar and around the world, and many have started their own entrepreneurial ventures. With 15 graduating classes, the total number of alumni is more than 1,100.

To learn more, visit www.qatar.cmu.edu and follow us on:

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 [Carnegie Mellon Qatar](https://www.linkedin.com/company/CarnegieMellonQatar)

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The CMU-Q *Annual Report* is produced each year by the Marketing and Public Relations team of Marissa Edulan, Angela Ford, Dustin Harris, Stephen MacNeil, Kara Nesimiuk, Catalina Rojas and Firas Villanueva.