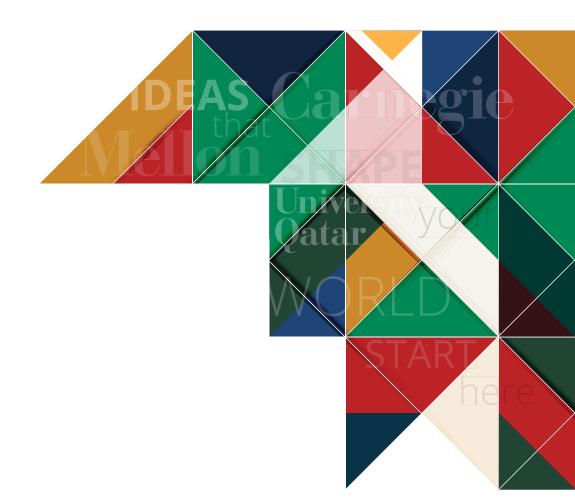


Carnegie Mellon University Qatar



Carnegie Mellon University in Qatar

# CONTENTS

From the Dean Research 2015-16 Faculty Research Student Research Appendices



# FROM THE DEAN

The large body of research in science and technology at Carnegie Mellon is tangible proof of an institution that cultivates hard work, critical thinking and creativity. At Carnegie Mellon University in Qatar, we encourage faculty and students to learn, explore and research in this tradition.

The primary goal of CMU-Q is to educate undergraduate students in the fields of biological sciences, business administration, computational biology, computer science and information systems. Many faculty members in each of these disciplines, as well as those who teach coursework in general education, pursue their own research interests. This research is a crucial part of the university environment, stimulating thought, raising challenging questions and gaining new understanding.

For students, participating in research helps sharpen the skills of creativity and critical thinking. Through undergraduate research, some students find inspiration to continue their studies and pursue careers in research. For others, the intellectual rigor of research is invaluable experience in problem solving, and they can apply these skills in their professional careers, regardless of the industry.

*Research Initiatives 2015-16* is a synopsis of faculty and student research over the academic year. I encourage you to read through to learn about the type of thought and inquiry taking place at Carnegie Mellon University in Qatar.

#### **Ilker Baybars**

Dean and CEO Carnegie Mellon University in Qatar



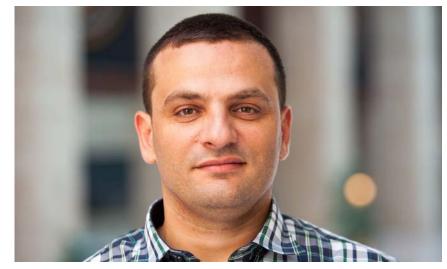
| During the 2015-16 academic year, construction was underway for a new biological sciences laboratory that will be used for teaching, as well as faculty and undergraduate research. |

# RESEARCH 2015-16

A research institute like no other, Carnegie Mellon is home to the world's leading experts in a range of fields. In this tradition, Carnegie Mellon Qatar nurtures and develops opportunities for faculty members and students to build regionally relevant research programs in their areas of expertise.

#### **Faculty Research**

Funded projects fall within the core disciplines of biological sciences, business administration, computational biology, computer science and information systems, as well as complementary areas like mathematics, social sciences, languages, and environmental science.



Anis Charfi, Arabic author profiling for cyber security

Most faculty members contribute to the CMU-Q body of work through studies funded by Qatar National Research Fund (QNRF) and internal seed research funds.

## Ongoing funded projects

- Role of the PDZ and LIM containing protein Zasp in integrin-mediated cell adhesion, Mohamed Bouaouina
- New mathematical models for the large strain swelling response of biological tissues: Applications to edema, inflammation, and pregnancy, Hasan Demirkoparan,
- Towards mobile opportunistic cloud computing: Enabling generic computational offloading to extreme heterogeneous entities, Khaled Harras
- Testing English reading comprehension through deep text analysis and question generation, Kemal Oflazer

- SLATE-Q: Scaffolding literacy in academic and tertiary environments: The case of communication in information systems, **Silvia Pessoa**
- Development of novel antibiotic, antiparasitic and anticancer agents, **Gordon Rule**

#### **New Research**

 Arabic author profiling for cyber security, Anis Charfi

#### Annual Research Conference (ARC)

CMU-Q had a strong presence at Qatar Foundation's Annual Research Conference, with **Maher Hakim**, associate teaching professor of entrepreneurship, moderating the keynote panel discussion at the opening plenary.

CMU-Q also shared the breadth of its research initiatives through 11 poster and oral presentations.



| The CMU-Q booth featured demonstrations of three key ongoing projects: Alice in the Middle East, phage genomics, and Q-SmartLab. |

#### ARC posters and presentations

- Characterizing novel *Bacillus*like bacteriophage isolated from Qatari sand, **Aya Abd Elaal, Annette Vincent**
- Arabic multi-genre corpus diacritization annotation, Houda Bouamor, Wajdi Zaghouani, Mona Diab, Ossama Obeid, Kemal Oflazer, Mahmoud Ghoneim, Abdelati Hawwari
- Effective high-level coordination programming for decentralized and distributed ensembles,
   Ali Elgazar, Edmund Lam, Iliano Cervesato
- A distributed and adaptive graph simulation system, Pooja Nilangekar, Mohammad Hammoud
- Alice in the Middle East: Computing curriculum for K-12, Saquib Razak, Hanan Alshikhabobakr, Huda Gedawy

- Improving reading: From teacher development to student reading, Dudley Reynolds, Zohreh Eslami, Maha Cherif Elili, Nancy Allen, Samah Al-Sabbagh
- Thymidylate kinases as targets for drug discovery, **Gordon S. Rule, Ian Fucci, Kaustubh Sinha**
- Analysis of Qatar's bacteriophage genome, Umm-Kulthum Umlai, Annette Vincent, Valentin Ilyin
- Sampling of Qatari sand microbes, Umm-Kulthum Umlai, Annette Vincent and Valentin Ilyin
- Annotation guidelines and framework for Arabic machine translation postedited corpus, Wajdi Zaghouani, Nizar Habash, Ossama Obeid, Behrang Mohit, Houda Bouamor, Kemal Oflazer
- Building an Arabic punctuated corpus, Wajdi Zaghouani, Dana Awad



**Divakaran Liginlal**, Raising language effectiveness in Arabic e-commerce websites

#### **Completed Projects**

#### Effective programming for large distributed ensembles

Lead PI: **Iliano Cervesato** Co-PI: **Frank Pfenning** 

Investigators developed a programming methodology and accompanying language for effectively programming concurrent and distributed applications. Researchers developed a system-centric language and applied it successfully to a number of mobile distributed applications.

#### Innovative computing and mobile technology for improving English literacy skills for children and for adults

#### Lead PI: **M. Bernardine Dias** Co-Lead PI: **Silvia Pessoa** Co-PI: **Yonina Cooper**

To understand the needs of English literacy learners and educators, and to develop relevant educational technology tools, a novel scalable educational game framework was created that motivates learners to interact with educational content.

#### Automatic correction of Standard Arabic text: Resource and system development

Lead PI: **Nizar Habash**, Columbia University

Co-Lead PI: Kemal Oflazer

This project developed a suite of novel resources, algorithms and methods to study the challenges of correcting Arabic text automatically, addressing errors in spelling, lexical choice and grammar. The techniques developed during this project will help in achieving significant improvements in other Arabic NLP efforts.

### Advancing Arabic Learning in Qatar

#### Lead PI: **Zeinab Ibrahim** PI: **Andreas Karatsolis** Co-PI: **Amal Al-Malki**

This project used tabletop touchscreen surface technology for teaching Modern Standard Arabic (MSA) to pre-elementary students in the classroom, resulting in a two-year Arabic language curriculum for pre-elementary children incorporating state-of-the-art language learning pedagogies.



Dudley Reynolds, Improving reading skills in the middle school science classroom

#### Raising language effectiveness in Arabic e-commerce websites

Lead PI: **Divakaran Liginlal** Co-PIs: **Robert Meeds, Rizwan Ahmad**, Qatar University

The project examined the use of metaphors in Arabic language e-commerce websites and demonstrated that metaphorical language enhances the effectiveness of websites and e-commerce businesses, findings are valuable for Arabic content creators and translators.

#### New Mathematical Models for the Large Strain Swelling Response of Biological Tissues

Lead PI: **Thomas J. Pence**, Michigan State University Co-Lead PI: **Hasan Demirkoparan** 

The project created and improved scientific methods for providing a mathematical modeling capability for the mechanical behavior of soft biological tissue in response to swelling. A key result was a mathematical model for soft tissue swelling and a finite element simulation capability for how swelling affects organ systems.

#### Improving reading skills in the middle school science classroom

Lead PI: **Dudley W. Reynolds**, Co-PIs: **N. Allen, M. Cherif Ellili**, **Z. Eslami** 

To enhance student comprehension of scientific texts, the project developed a curriculum model for integrated instruction in reading and science, as well as a lesson study to change and develop teachers' instructional beliefs and practices.

#### Cooperative Robotic Boats for Monitoring Coastal and Flooded Areas

#### Lead PI: **Paul Scerri** Co-Lead PI: **Khaled Harras**

To coordinate cooperative watercraft for environmental monitoring, low-cost and efficient data collection, a new approach and language was developed to acheive large scale coordination.

#### **Student Research**

The Meeting of the Minds research symposium is a highlight of the academic year, a celebration of the ingenuity, hard work, scientific exploration and intellectual curiosity that characterizes students in all disciplines at CMU-Q.

# Comment Malendaries

*Dr. Barak Yehya*, Expert, Institutional Development presents the awards from the Ministry of Development Planning and Statistics on behalf of the minister, *H.E. Dr. Saleh bin Mohammed Al-Nabit* 

## Meeting of the Minds, 2016

#### **Best Projects**

- Characterizing a novel Bacilluslike phage from Qatar's sand, Aya Abd Elaal
- Wireless eruptions -Reprogramming wireless sensor networks: Challenges and approaches, Aliaa Essameldin
- Role of DNAJB3/ HSP-40 in maintaining metabolic homeostasis, **Bushra Memon**

#### **Best Poster**

 CheckMyStack vulnerability detection tool for the Qatari web, Aseel Ghazal, Daanish Ali Khan

#### Qatar National Research Fund (QNRF) Awards

#### **Best Project**

 Drone-Be-Gone: Agile lowcost vision-based UAV cyber physical testbed, Sidra Alam, Khaled A. Harras; Qatar University: Mouhyemen Khan, Amr Mohamed

#### **Best Poster**

 CheckMyStack vulnerability detection tool for the Qatari web, Aseel Ghazal, Daanish Ali Khan

#### Ministry of Development Planning and Statistics Awards

- A web-based framework for Arabic text diacritization annotation, Ossama Obeid, Wajdi Zaghouani, Houda Bouamor, Kemal Oflazer, Mona Diab, Mahmoud Ghoneim, Abdelati Hawwari
- Temporal patterns in Qatar's particulate air pollution,
  Syed Abbas Mehdi and
  Nourhan ElKhatib
- Microbiology-based educational kit for high school students in Qatar, Wadha Al-Marri
- Designing services in healthcare: A research collaboration with Hamad General Hospital, Shaikha Al-Thani
- Helping Qatar's disabled: Identifying web accessibility problems, **Dana Al-Muftah**



**Dana Al-Muftah** receives the Best Presentation award from Tridas Mukhopadhyay, Deloitte Consulting Professor, e-Business

#### Undergraduate Conference in Information Systems (UCIS)

#### **Best Paper**

 ICT-TrAVEI: Mobile public transport companion for the visually impaired, Cui Linting, Kenny Ngo, Benjamin Gan Kok Siew, Singapore Management University

#### **Best Presentation**

- Beating the stock market: Measuring the predictive power of Twitter sentiment analysis, **Alex Isken**, Marquette University
- A study of web accessibility and related policy implications to Qatar, Dana Al-Muftah, CMU-Q

#### **Best Slam Presentation**

 Spark, Nathan Oh, Aditi Sarkar, Skylar Weaver, CMU

#### **Best Poster**

 Restoring freedom to Parkinson's patients, Amal Al-Dahneem, Shaikha Al-Thani, Noor Al-Qaedi, Juan Sam, CMU-Q  FlierCal, Matt Nielsen, Maggie Li and Ankur Toshniwal, CMU

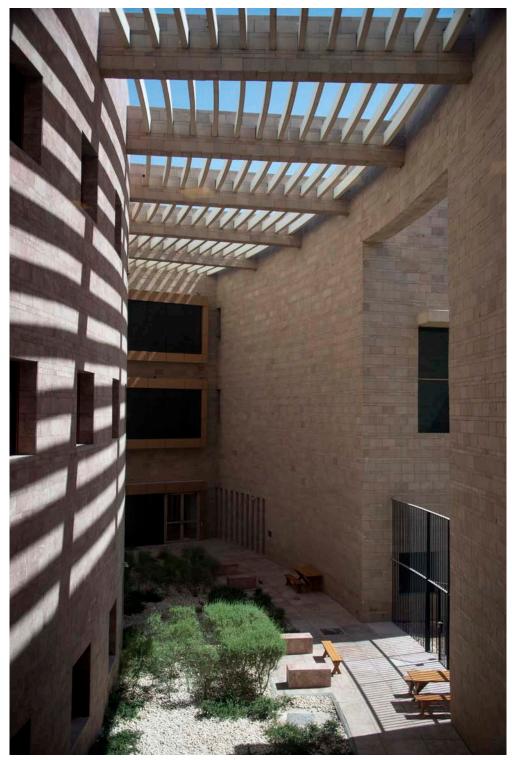
# Notable international conference presentations

74th Annual Scientific Meeting of the American Psychosomatic Society, Denver, Colorado. "Validity and reliability of the Arabic version of the Perceived Stress Scale (PSS-10)," and "Stress, mental and physical health, and social media usage among Arabic speaking undergraduates in the Middle East."

#### Alaa Khader, Aya Gaballa, Fatima Amir, Narjis Premjee, Bayan Khaled

 2015 American Physical Society (APS) Division of Fluid Dynamics (DFD) and Division of Plasma Physics (DPP) meetings.
 "Influence of interference of perturbation waves on the dynamics of Richtmyer-Meshkov flows'."
 Arun Pandian,

Robert Stellingwerf, Snezhana Abarzhi The Undergraduate Conference in Information Systems creates a venue for students and faculty from around the world to present and engage with cutting edge undergraduate research. The conference theme this year, "Humanizing IT," invited participants to consider the evolving role of IT in all facets of human life.



A quiet courtyard at CMU-Q

# APPENDICES

NPRP grants Meeting of the Minds posters Publications and presentations by faculty members Senior Honors Theses

National Priorities Research Program (NPRP) grants awarded to Carnegie Mellon faculty

	LEAD PI IN QATAR	NPRP	TITLE
			Images of Muslim women in translated Mideast media sources:
	Amal Al-Malki	NPRP 29-6-7-9	A content and discourse analysis
	Majd Sakr	NPRP 29-6-7-24	Human-robot interaction in an Arabic social and cultural setting
<u> </u>	M. Bernardine Dias	NPRP 1-7-7-5	Automated tools for effective team coordination in emergency response
Cycle	M. Bernardine Dias	NPRP 30-6-7-91	Enhanced education for the visually and aurally impaired using automated tutors and interactive computer games
	Jonathan Caulkins	NPRP 20-6-7-6	Modeling control of infectious disease
	Charles Thorpe	NPRP 29-6-7-43	Intelligent diabetes assistant: Predicting and optimizing blood glucose
	Aziz Lookman	NPRP 30-6-7-28	Are banks better at managing their borrower's risks than non-banks
	Alex Rojas Pena	NPRP 08-643-1-112	Automated measurement of galaxy morphology
Cycle 2	Brett Browning	NPRP 08-589-2-245	Non-destructive gas pipeline inspection using computer vision
	Khaled Harras	NPRP 08-562-1-095	CameraNets: Coverage, networking, and storage problems in wireless multimedia sensor networks
	Kemal Oflazer	NPRP 08-485-1-083	Improved Arabic natural language processing through semi supervised and cross-lingual learning
	Silvia Pessoa	NPRP 09-857-5-123	Transnational labor migration in Qatar: An empirical sociological analysis
	Kemal Oflazer	NPRP 09-1140-1-177	Learning from comparable corpora for improved English-Arabic statistical machine translation
ŝ	Brett Browning	NPRP 09-980-2-380	Robust localization and mapping for autonomous gas inspection vehicles
Cycle	Majd Sakr	NPRP 09-1116-1-172	Qloud: Towards a cloud computing infrastructure in Qatar to target regional scientific applications
	Majd Sakr	NPRP 09-1113-1-171	Towards natural multi-cultural human-robot interaction
	Kemal Oflazer	NPRP 09-1113-1-171	A natural language processing-based active and interactive platform for accessing English language content and advanced language learning
	lliano Cervesato	NPRP 09-1107-1-168	Formal reasoning about language for distributed computation
	Iliano Cervesato	NPRP 09-667-1-100	Effective programming for large distributed ensembles
	M. Bernardine Dias	NPRP 4-439-1-071	Innovative computing and mobile technology for improving English literacy skills for children and for adults
Cycle 4	M. Bernardine Dias	NPRP 4-1330-1-213	Cooperative robotic boats for monitoring coastal and flooded areas
	Andreas Karatsolis	NPRP 4-1538-6-048	Improving professional communication skills through an online tutorial
Š	lliano Cervesato	NPRP 4-341-1-059	Usable automated data inference for end-users
	Dudley Reynolds	NPRP 4-1172-5-172	Improving reading skills in the middle school science classroom
	Majd Sakr	NPRP 4-1058-1-168	Automatic correction of Standard Arabic text: Resource and system development
	Hasan Demirkoparan	NPRP 4-1138-1-178	New mathematical models for the large strain swelling response of biological tissues

	LEAD PI IN QATAR	NPRP	TITLE
Cycle 4	Hasan Demirkoparan	NPRP 4-1333-1-214	Complex material response described by continuum mechanics with a deformation gradient product decomposition that has novel hyperelastic implications
	Zeinab Ibrahim	NPRP 4-1074-5-164	Advancing Arabic language learning in Qatar
	Vinay Kolar	NPRP 4-1620-1-266	Large-scale, personal and mobile sensor networks and their applications in Qatar
َ ںَ	Krishnapuram Karthikeyan	NPRP 4-783-1-119	Plant uptake of pollutants of emerging concern during use of reclaimed water in greenhouse hydroponic systems
	Krishnapuram Karthikeyan	NPRP 4-718-2-268	Use of novel water treatment methods for desalination of brackish groundwater in Qatar
S	Davide Fossati	NPRP 5-939-1-155	Intelligent learning environments for computer science undergraduate education
<u>e</u>	Divakaran Liginlal	NPRP 5-1393-6-044	Raising language effectiveness in Arabic ecommerce websites
Cycle	Yonina Cooper	NPRP 5-1070-2-451	Alice for Middle East—Alice ME
	Silvia Pessoa	NPRP 5-1320-6-040	Undergraduate discipline-specific writing: Expectations, demands, and development
Cycle 6	Kemal Oflazer	NPRP 6-1020-1-199	OPTDIAC: An optimal diacritization scheme for Arabic orthographic representation
	Jonathan Finkel	NPRP 6-1130-3-267	Adherence and biofilm formation of pathogenic yeast and yeast- like fungi from the Qatari clinical setting
Cycle 7	Mohamed Bouaouina	NPRP 7-1872-1-331	Role of the PDZ and LIM containing protein Zasp in integrin- mediated cell adhesion
	lliano Cervasato	NPRP 7-988-1-178	Automated verification of properties of concurrent, distributed and parallel specifications with applications to computer security
	Mohammad Hammoud	NPRP 7-1330-2-483	Scalable analytics engine for big graphs on the cloud
	Dudley Reynolds	NPRP 7-1393-5-209	Learning4Teaching-Qatar: Examining Qatari teachers' experiences of professional development in English language teaching
	Snezhana Abarzhi	NPRP 7-1785-1-321	Numerical and theoretical modeling of complex fluid flows
	Kemal Oflazer	NPRP 7-290-1-047	MADAR: Multi-Arabic dialect applications and resources
	Kemal Oflazer	NPRP 8-1337-1-243	Testing English reading comprehension through deep text analysis and question generation
Cycle 8 & 9	Khaled Harras	NPRP 8-1645-1-289	Towards mobile opportunistic cloud computing: Enabling generic computational offloading to extreme heterogeneous entities
	Silvia Pessoa	NPRP 8-1815-5-293	SLATE-Q: Scaffolding Literacy in Academic and Tertiary Environments: The case of communication in information systems
	Gordon Rule	NPRP 8-2225-1-439	Development of novel antibiotic, antiparasitic and anticancer agents
	Hasan Demirkoparan	NPRP 8-2424-1-477	New mathematical models for the large strain swelling response of biological tissues: Applications to edema, inflammation, and pregnancy
	Anis Charfi	NPRP 9-175-1-033	Arabic author profiling for cyber security

Meeting of the Minds posters

#### **Biological Sciences Posters**

Possible alternative to chimeric placental and intestinal alkaline phosphatase in the treatment of acute kidney disease

Inhibition of bacterial alkaline phosphatase by L-phenylalanine

Development of educational protein assay for secondary schools in Qatar

Characterizing a novel bacillus-like phage from Qatar's sand

Role of DNAJB3/ HSP-40 in maintaining metabolic homeostasis

The effect of pH on the activity and affinity of alkaline phosphatase

Analysis of microbiome in water systems in Doha

Comparison of kinetic behavior between *E. coli* and calf-intestinal alkaline phosphatase using nitrophenyl phosphate (NPP)

Effect of aspartame on malate aspartate shuttle in MDCK cells

Isolation, purification, and complete genome sequence of *Bayan* bacteriophage, a potential therapeutic tool for tuberculosis

Acute toxicity of saccharine on proximal tubular kidney cells

Inhibition of human placental alkaline phosphatase (PLAP) by L-phenylalanine

Temporal patterns in Qatar's particulate air pollution

Annotation of Qatar's novel *Bacillus*-like phage genome

Microbiology-based educational kit for high school students in Qatar

#### **Computer Science Posters**

Computer assisted learning using foreign language material

Device-to-device communication in the internet of things: providing development guidelines for IoT enthusiasts

Wireless eruptions— Reprogramming wireless sensor networks: Challenges and approaches

CheckMyStack vulnerability detection tool for the Qatari web

Software defined networking in wireless networks using a Raspberry Pi

Applying recurrent neural network for Arabic named entity recognition

An in-car speech-based interactive recitation correction system

Tweets about Qatar: Who's setting the agenda?

Social media image analysis for public health

#### **General Education Posters**

Graceful trees and parking functions

#### **Information Systems Posters**

Helping Qatar's disabled: Identifying our web accessibility problems

Designing services in healthcare: A research collaboration with Hamad General Hospital

#### **Postgraduate Posters**

A leg in the future of hive mind programming

A web-based framework for Arabic text diacritization annotation

Alice in the Middle East: Computing curriculum for K-12

Cumulus: A distributed flexible computing testbed for edge cloud computational offloading

Detecting and tracking attacks in mobile edge computing platforms

Drone-Be-Gone: Agile low-cost vision-based UAV cyber physical testbed

Extending the range via ad-hoc communication for cooperative robotic watercraft

GraphSim: A distributed and adaptive graph simulation system

NEXCEL: A deductive spreadsheet

The OptDiac Project: Guidelines and framework for a large scale Arabic diacritized corpus

Effect of wave interference on Richtmyer-Meshkov instability

Teacher development for student reading

A study of visual metaphors on Arab e-commerce websites

Websites as cultural expressions: A multimodal analysis of Arabic e-commerce websites

Publications and presentations by faculty members

Chadi Aoun, associate teaching professor of information systems and Dr. Savanid Vatanasakdakul (Macquarie University) and Karyne Ang (University of Technology Sydney). "Feedback for Thought: Examining the Influence of Feedback Constituents on Learning Experience." In Journal of Studies in Higher Education.

Houda Bouamor, visiting assistant teaching professor of computer science and Salam Khalifa and Nizar Habash (NYU Abu Dhabi). "DALILA: The Dialect Arabic Linguistic Learning Assistant." In Proceedings of the 10th edition of the Language Resources and Evaluation Conference (LREC).

#### Alexander R. Wilcox Cheek,

assistant teaching professor of information systems, and **Carola Verschoor**. "The Business Designer Hybrid." In *Change Ahead*.

#### Alexander R. Wilcox Cheek,

assistant teaching professor of information systems. "Teaching the 'Design Disposition' to Future Technologists," Interaction '16 Helsinki and Aalto University School of Arts, Design and Architecture, IxDA Education Summit, Helsinki, Finland.

#### Alexander R. Wilcox Cheek,

assistant teaching professor of information systems. "Designing Organizational Change," Vodafone Qatar Corporate Social Responsibility Majilis, Doha, Qatar.

Alexander R. Wilcox Cheek, assistant teaching professor of information systems and Silvia Pessoa (CMU-Q) and Thomas Mitchell (CMU-Q). "Working with a Designer: Understanding Writing, Expectations, Explicit Instruction and Improved Writing," Liberal Arts International Conference, Doha, Qatar.

Benjamin Collier, assistant teaching professor of organizational behavior, and Julia Bear. "Where are the Women in Wikipedia? Understanding the Different Psychological Experiences of Men and Women in Wikipedia." In Sex Roles. Hasan Demirkoparan, associate teaching professor of mathematics, and Heiko Topol (CMU-Q), Thomas Pence (Michigan State University) and Alan Wineman (University of Michigan). "Uniaxial load analysis under stretch dependent fiber remodeling applicable to collageneous tissue." In Journal of Engineering Mathematics.

Hasan Demirkoparan, associate teaching professor of mathematics, Ashraf Hadoush (CMU-Q) and Thomas Pence (Michigan State University). "Straightening an annular cylindrical sector that is composed of an internally balanced compressible elastic material," 9th European Solid Mechanics Conference (ESMC 2015), Leganes-Madrid, Spain.

Hasan Demirkoparan, associate teaching professor of mathematics and Thomas Pence (Michigan State University). "Hyperelastic Swelling Modelling of Multilayer Tubes with Fibrous Structure," Modelling across the Biology – Mechanics Interface, Castro Urdiales, Cantabria, Spain.

David Emmanuel Gray, assistant teaching professor of philosophy and Dana Haidan (Vodafone Qatar) and Martin Neureiter (The CSR Company GmbH). "Training and Education for Sustainability Reporting," Corporate Social Responsibility, Awarding Institutions, and Launch of the White Book Conference, Doha, Qatar.

**David Emmanuel Gray**, assistant teaching professor of philosophy. "A Better Way to Think About Business Ethics," Corporate Social Responsibility Majlis on Defining your Corporate Purpose for a Sustainable Change, Doha, Qatar.

**Erik Helin**, special lecturer of Spanish. "Developing Intercultural Competence through Learning Spanish Among Culturally and Linguistically Diverse Students," Northeast Conference on the Teaching of Foreign Languages, New York, USA. Amal Helu, visiting associate professor of statistics. "The inverse Weibull distribution as a failure model under various loss functions," Joint Statistical Meetings (JSM), Seattle, USA. Keynote address.

Amal Helu, visiting associate professor of statistics. "The inverse Weibull distribution as a failure model under various loss functions and based on progressive first-failure censored data." In *Quality Technology* & *Quantitative Management*.

Adam Hodges, visiting assistant professor of English. "Ideologies of Language and Race in US Media Discourse about the Trayvon Martin Shooting." In *Language in Society*.

Adam Hodges, visiting assistant professor of English. "The Paranoid Style in Politics: Ideological Underpinnings of the Discourse of Second Amendment Absolutism." In Journal of Language Aggression & Conflict.

Adam Hodges, visiting assistant professor of English. "Accusatory and Exculpatory Moves in the Hunting for 'Racists' Language Game." In *Language* & *Communication*.

Adam Hodges, visiting assistant professor of English. "Reinforcing Dominant Understandings of Racism: The Intertextual Circulation of Small Stories about George Zimmerman," American Anthropological Association annual meeting, Denver, CO.

Starling David Hunter III, visiting associate teaching professor of business administration, and Susan Smith, American University of Sharjah. "A Network Text Analysis of David Ayer's Fury." In Advances in Language & Literary Studies.

**Starling David Hunter III**, visiting associate teaching professor of business administration. "Combining Theoretical Perspectives on the Organizational Structure-Performance Relationship." In *Journal* of Organization Design.

Publications and presentations by faculty members

Starling David Hunter III, visiting associate teaching professor and Susan Smith (American University of Sharjah) and Saba Singh (School of Visual Arts). "Predicting box office from the screenplay: A text analytical approach." In Journal of Screenwriting.

Starling David Hunter III, visiting associate teaching professor and Susan Smith (American University of Sharjah) and Saba Singh (School of Visual Arts). "Predicting Box Office From The Screenplay: The Role of Network Text Analysis," International Network of Social Network Analysis, Newport Beach, USA.

Ludmila Hyman, assistant teaching professor. "Gorbachev's Argument for Perestroika: Forgotten or Remembered?" NCA/ AFA (Alta) Summer Conference on Argumentation, Alta, Utah, USA.

**Onur Kesten**, associate professor of economics, and **Yan Chen**, University of Michigan. "College and High School Admissions Reforms in China," Departmental seminars at Qatar University and Georgetown University.

**Onur Kesten**, associate professor of economics and **Yan Chen**, University of Michigan. "College and High School Admissions Reforms in China: A Theoretical Analysis." In *Journal of Political Economy*.

Ramesh Krishnamurti, professor of architecture, and Kui Yue, Microsoft. "Developing a tractable parametric shape grammar." In Environment & Planning B: Planning and Design.

Ramesh Krishnamurti, professor of architecture. "Mulling over shapes, rules and numbers." In *Nexus Network Journal*. Divakaran Liginlal, teaching professor of information systems, Lara Khansa (Virginia Tech), Xiao Ma (University of Arkansas), and Sung Kim (University of Wisconsin-Madison). "Understanding Members' Participation in Online Questionand-Answer Communities: A Theory and Empirical Analysis." In *Journal of Management Information Systems*.

**Divakaran Liginlal**, teaching professor of information systems. "HIPAA and Human Error: The Role of Enhanced Situation Awareness in Protecting Health Information." In *Medical Data Privacy Handbook*. Gkoulalas-Divanis and Loukides (Eds.).

Divakaran Liginlal, teaching professor of information systems and Robert Meeds (Qatar University) and Rizwan Ahmad (Qatar University) and Preetha Gopinath (CMU-Q). "Webpages as Cultural Expressions: A Study of Metaphor Use in Arab E-Commerce Web." In International Journal of Global Information Technology Management.

Divakaran Liginlal, teaching professor of information systems and Simon Fass and Priyanka Vyas (University of Texas at Dallas) and Rami Yousef (Qatar University). "Understanding Causes of Fall and Struck-by Incidents: What Differentiates Construction Safety in the Arabian Gulf Region." In Applied Ergonomics Journal.

**Divakaran Liginlal**, teaching professor of information systems, and **Aisha Al-Missned**, (CMU-Q). "Voices of Al-Khor - A Study in Digital Cultural Heritage," Digital Heritage International Congress 2015, Granada, Spain, derived from Aisha Missned's senior honors thesis. Divakaran Liginlal, teaching professor of information systems, Rami Yousef (Lusail), Simon Fass (University of Texas at Dallas), and Chadi Aoun (CMU-Q). "Combining Morphological Analysis and Bayesian Belief Networks: A DSS for Safer Construction of a Smart City," Americas Conference on Information Systems, Puerto Rico.

Divakaran Liginlal, teaching professor of information systems, Maryam Al-Fehani, Preetha Gopinath, and Alex Cheek (CMU-Q). "Wish Lists and Shopping Carts: A Study of Visual Metaphors on Arab E-Commerce Websites," Workshop on E-Business at the International Conference on Information Systems, Dallas, Texas, USA. A research outcome of a QNRF-sponsored project from Cycle 5 titled "Raising Language Effectiveness in Arabic Ecommerce Websites."

Thomas D. Mitchell, assistant teaching professor of English and **Ryan T. Miller** (Kent State University) and **Silvia Pessoa** (CMU-Q). "Impact of source texts and prompts on students' genre uptake." *In Journal of Second Language Writing*.

Saquib Razak, associate teaching professor of computer science and Huda Gedaway (CMU-Q) and Wanda Dann and Donald Slater (CMU). "Alice in the Middle East: An Experience Report from the Formative Phase," 47th ACM Technical Symposium on Computing Science Education.

**Benjamin James Reilly**, associate teaching professor of history. *Slavery, Agriculture, and Malaria in the Arabian Peninsula*. Oxford University Press.

**Benjamin James Reilly**, associate teaching professor of history. "Arabian Travellers, 1800-1950: An Analytical Bibliography." In *British Journal of Middle Eastern Studies*.

Publications and presentations by faculty members

**Benjamin James Reilly**, associate teaching professor of history. "A Well-Intentioned Failure: British Antislavery Measures and the Arabian Peninsula, 1820-1940." In *Journal of Arabian Studies*.

**Dudley Reynolds**, teaching professor of English. "Human subjects review." In *The Cambridge Guide to Research in Language Teaching and Learning*.

**Dudley Reynolds**, teaching professor of English. "Qatari middle school students' perceptions of strategies for L1 and L2 reading. In *Current Issues in Reading, Writing and Visual Literacy: Research and Practice.* 

**Dudley Reynolds**, teaching professor of English. "What Shape Is Your Teaching In? Taking Stock and Making Plans in an Age of Innovation," TESOL Kuwait 2015 Conference "Reshaping English Teaching in An Age of Innovation," Kuwait. Keynote address.

Dudley Reynolds, teaching professor of English. "Language and content teacher development through lesson study," TESOL International Association Regional Conference "Excellence in Language Instruction: Supporting Classroom Teaching & Learning,"Singapore.

Alicia Salaz, reference and instruction librarian and **Teresa MacGregor** (CMU-Q). "What Came First, the Whale or the Egg." In *The Discovery Tool Cookbook: Recipes for Succesful Lesson Plans by ACRL*.

Alicia Salaz, reference and instruction librarian, and **Teresa MacGregor**, director of the library. "ACRL's Framework in the Arab Gulf: A Practitioner View on National Frameworks in Transnational Higher Education," European Conference on Information Literacy, Tallinn, Estonia. Alicia Salaz, reference and instruction librarian and Nicole Johnston (Universty College London). "Online vs. Blended Learning: Issues and Challenges," 22nd Annual Conference and Exhibition of the Special Libraries Association Arabian Gulf Chapter, Kuwait.

Peter Stuettgen, assistant teaching professor of marketing and Peter Boatwright (CMU). "The Prevalence of Compensatory Choice: Are We Compensating for the Lack of Search Path Data," European Marketing Academy 2016 Conference, Oslo, Norway.

**Ihab Younis**, assistant teaching professor of biological sciences. "Splicing switches: Minor introns determine the fate of gene expression," Nara Institute of Science and Technology International Workshop, Nara, Japan.

Wajdi Zaghouani, research associate and Ossama Obeid, Houda Bouamor and Kemal Oflazer (CMU-Q) and Mahmoud Ghoneim, Abdelati Hawwari and Mona Diab (GWU). " MANDIAC: A Web-based Annotation System for Manual Arabic Diacritization." In Proceedings of the 2nd Workshop on Arabic Corpora and Processing Tools 2016 Theme: Social Media, LREC 2016.

Wajdi Zaghouani, research associate and Dana Awad (The Lebanese University). "Toward an Arabic Punctuated Corpus: Annotation Guidelines and Evaluation." In Proceedings of the 2nd Workshop on Arabic Corpora and Processing Tools 2016 Theme: Social Media, LREC 2016.

Wajdi Zaghouani, research associate and Irina Temnikova and Stephan Vogel (QCRI) and Nizar Habash (NYU Abu Dhabi). "Applying the Cognitive Machine Translation Evaluation Approach to Arabic." In Proceedings of the 10th edition of the Language Resources and Evaluation Conference. Wajdi Zaghouani, research associate and Houda Bouamor, Ossama Obeid and Kemal Oflazer (CMU-Q) and Abdelati Hawwari, Mona Diab, Sawsan Alqahtani and Mahmoud Ghoneim (GWU). "Large Scale Arabic Diacritized Corpus: Guidelines and Framework." In *Proceedings of the 10th edition of the Language Resources and Evaluation Conference.* 

Wajdi Zaghouani, research associate and Behrang Mohit (Ask. com), Nizar Habash (NYU Abu Dhabi) and Ossama Obeid, Houda Bouamor and Kemal Oflazer (CMU-Q). "Building an Arabic Machine Translation Post-Edited Corpus." In Proceedings of the 10th edition of the Language Resources and Evaluation Conference.

**Wajdi Zaghouani**, research associate of computer science and **Dana Awad** (The Lebanese University). "Building an Arabic Punctuated Corpus," Qatar Foundation Annual Research Conference, Doha, Qatar.

Wajdi Zaghouani, research associate of computer science and Behrang Mohit (Ask.com), Nizar Habash (NYU Abu Dhabi) and Ossama Obeid, Houda Bouamor and Kemal Oflazer (CMU-Q). "Annotation Guidelines and Framework for Arabic Machine Translation PostEdited Corpus," Qatar Foundation Annual Research Conference, Doha, Qatar.

Wajdi Zaghouani, research associate of computer science and Stephan Vogel (QCRI). "Social Entrepreneurship: Improving Literacy in the Arab World Through Ebooks for Children," Empower Workshops 2016, Doha, Qatar.

Senior honors theses

#### Aya Abd Elaal

"Characterizing a novel Bacillus-like bacteriophage from Qatar's *sand*."

#### Maryam Abdula Hafeez Aghadi

"Effect of aspartame on malate aspartate shuttle in MDCK cells."

#### Dana Abdulrahman Al-Muftah

"Identifying special needs for web accessibility in Qatar: A study of web accessibility and related policies in the State of Qatar"

#### Noora Jassim Al-Muftah

"The discovery of relatedness and population structure in the 1000 Genome Project."

#### **Clinton Cunha**

"Fluorogen-activiating single-chain antibodies for tumor detection using Patent Blue V and structurally similar triarylmethane dyes."

#### Naasih Ahmad Gopee

"Applying recurrent neural network for Arabic named entity recognition."

#### Rayan M.A.M. Hashim

"Acute toxicity of saccharine on proximal tubular kidney cells."

#### Alaa Mahmoud Mohamed Khader

"Computer assisted learning for Arabic speaking ESL students."

#### Bushra Naushad Memon

"Role of DNAJB3/Heat Shock Protein-40 co-chaperone in maintaining metabolic homeostasis."

#### Umm-Kulthum Umlai

"Genome annotation and characterization of first bacteriophage, Shumi, isolated in Qatar from *sand*."

#### About Carnegie Mellon University in Qatar

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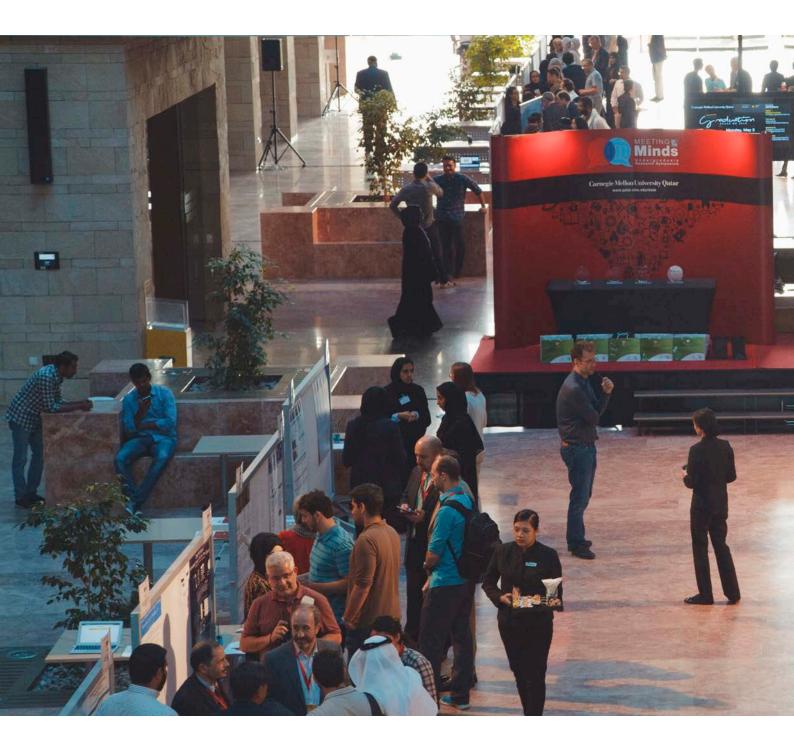
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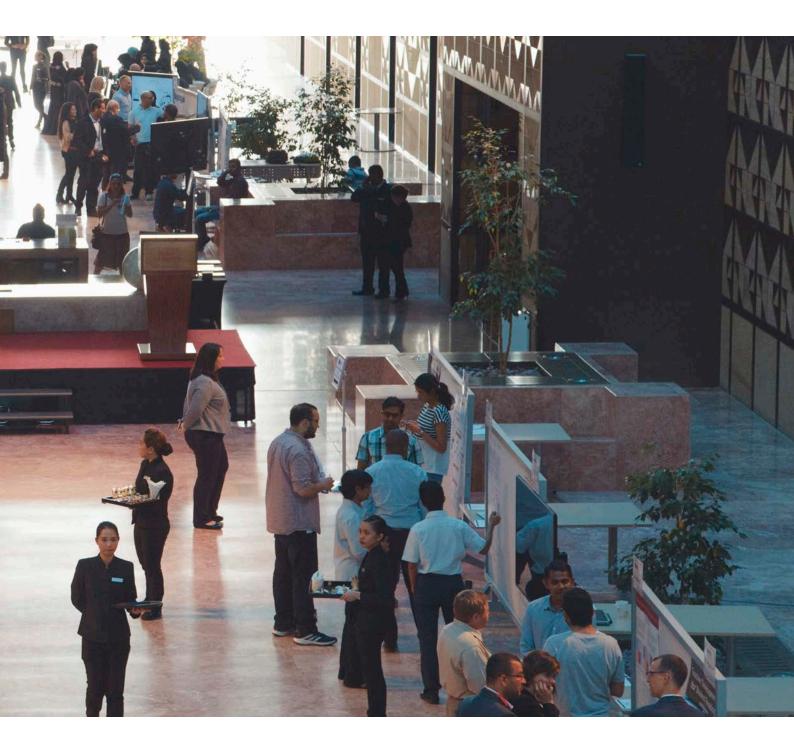
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