



كلية الهندسة
College of Engineering
QATAR UNIVERSITY جامعة قطر

Bridging the Gap II

Industry-Academia; CENG Experience

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College of Engineering, Qatar University

“Bridging the Gap II” - A Special Workshop for Industry and Academics, 22.01.2020, W Hotel, Doha, Qatar

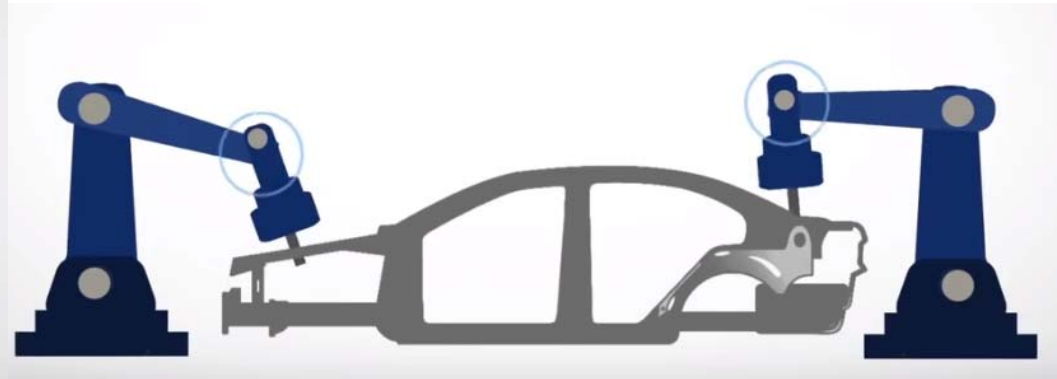


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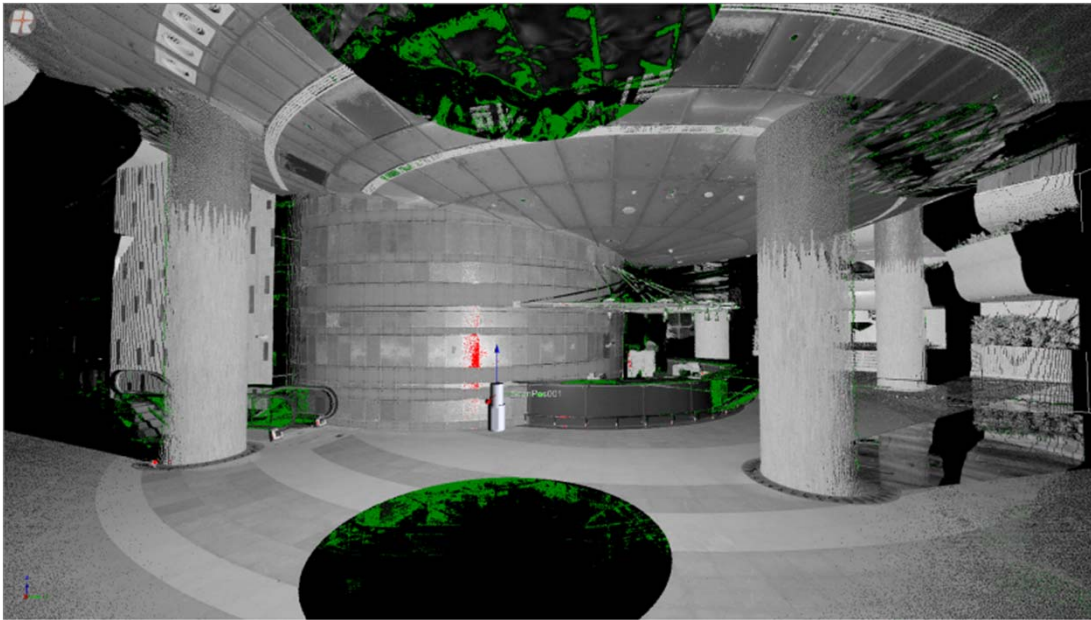
Challenges & Perspectives...

INDUSTRY 4.0

THE FOURTH INDUSTRIAL REVOLUTION



Adapted from diverse sources (2020)



Fadli et al. (2018)



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Digital / Digitized World



Qatar University Vision

To be **regionally recognized for distinctive excellence in education and research**, an institution of choice for students and **scholars** and a **catalyst** for the **sustainable socio-economic development** of Qatar.



Qatar University Mission

Qatar University is the national institution of higher education in Qatar. It provides **high quality undergraduate and graduate programs** that prepare **competent graduates**, destined to shape the future of Qatar. The university community has **diverse and committed faculty** who **teach and conduct research**, which **addresses relevant local and regional challenges**, **advances knowledge**, and **contributes actively to the needs and aspirations of society**.



Qatar National Vision 2030 Foresees Transition Towards Knowledge Economy



QU - Partnership with Industry...The Need

- Consistent with the mission of QU, one objective of the strategic plan of QU is to **strengthen the partnership and cooperation with the different institutions of the society.**
- The Need for **KBE** intensified the need ... for **Strategic Partnership**... that go beyond the **traditional funding** of discrete research projects..
- World Class Universitiesshould be at the forefront of such **strategic Partnership**



QU- Partnership with Industry...Initiatives

Strategic Initiatives

- Secure long term **research funding**
- Establish **Industrial Chairs**
- Attract **sponsors** for teaching and research laboratories.
- Establish mechanisms for **improving interactions with industry**
- **IAB** for academic programs
- Structured and regular **visits to companies** to discuss development
- Organize campus visits for **perspective employers**
- Enhance the **internship summer programs**
- **Sabbatical/summer work** at industry
- **Improve testing facilities** and increase the number of **accredited labs**.



University-Industry Concluding Remarks

- It is a big leap.... each side to **engage far beyond conventional exchange of research funding.**
- Merge the **discovery driven culture** of the university with.... **the innovation driven environment** of the company....
- **Long-term partnerships generate the largest benefit.....**



Partnerships that go Strategic

- Industry-university collaboration works best with **big framework agreements** based on **broad principles**.
- We need to sit and talk about the opportunity and what each party brings. **Each side has to be rewarded**.
- It takes **work and leadership from the top** to create and maintain good relationships.
- The partnership should start from **clearly agreed deliverables**.
- We need to **define together** what **success means**, and how will go about achieving it.



Partnerships that Impact Innovation

- **People get too hung up on ownership of IP instead of the outcome, the incentives and rewards for all parties. IP is a critical topic, but it's totally overestimated by universities.**
- **The most difficult thing about partnering often is the start, including negotiations with the legal and technology transfer organization.**
- **Help universities to transform their culture and mission, intensifying their role in service to the economy through partnerships with industry that drive innovation.**
- **Choose the right people....**It all boils down to interpersonal relationships, trust and appreciating the difference between what universities do and what companies do.



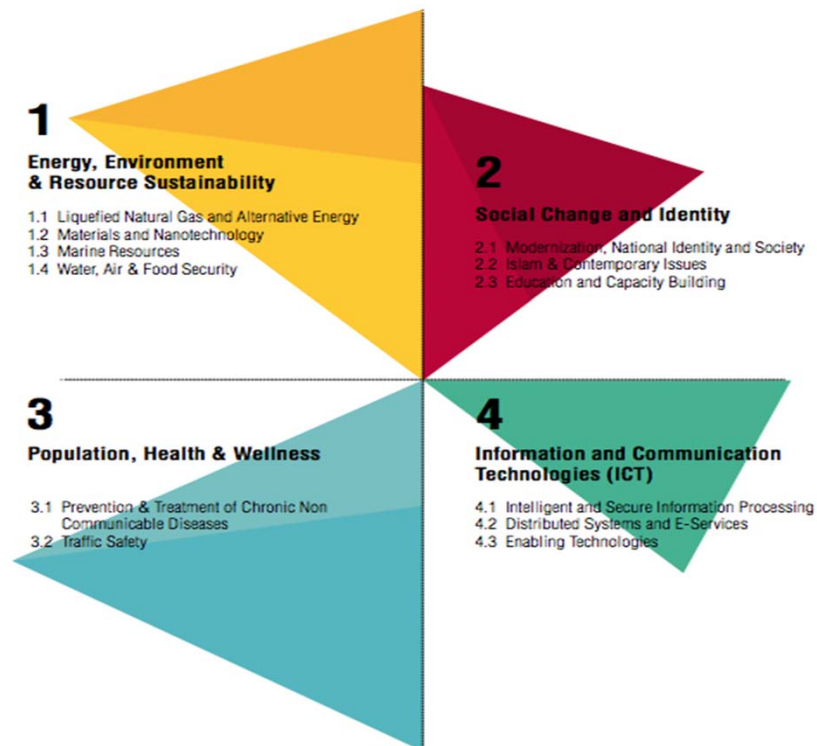
Partnerships that Impact Academics

- The partnership should start from **clearly agreed deliverables**. You need to **define together** what **success means**, and how will go about achieving it.
- It's about **collaboration** rather than **sponsorship**.
- what makes universities attractive as industry partners, what structures make for **excellent partnerships** and what approach produces **seamless interactions**.



R&DI @ QU/CENG

Themes and subthemes of the main research priority areas of Qatar University

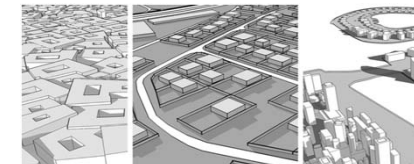




Architectural Theory and History

Research Interests

- Sustainable Architecture & Urban Design
- Sustainability assessment and modeling,
- Ecological planning and landscape urbanism
- Environmental Impact Assessment
- Smart Cities
- Sustainable Urbanism



Research Projects

- SUGI-MNEX, NPRP 7th Cycle: The Design, Development & Use of Innovative Bio-Green Facades in Qatar: Towards improved urban microclimates and enhanced building thermal performance in Qatar
- NPRP 7th Cycle: Development of a Simple Tool To Design Energy-Efficient, Low-Emission, and Cost Effective Commercial Buildings
- NPRP 7th Cycle: Investigating Housing Typologies in Multicultural Societies of the Gulf Region
- NPRP 5th Cycle: Towards Eco-District Planning in Greater Doha
- NPRP 4th Cycle: A Novel Passive Air Conditioning System



Year	Project Name	Role
2018	Research on Spatial Systems and Urban Morphology	Researcher
2017	Research on Urban Morphology	Researcher
2016	Research on Urban Morphology	Researcher
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1901	Research on Urban Morphology	Researcher
1900	Research on Urban Morphology	Researcher



Faculty members

- Dr. Raffaello Furlan
- Dr. Fodil Fadli
- Dr. Faris Khamidi
- Dr. Hatem Ibrahim
- Dr. Djamel Boussaa
- Dr. Salim Ferwati
- Dr. Djamel Ouahrani

Key Outcomes (last 3 years)

- > 20 journal publications
- > 5 edited books
- > 5 PhD supervised
- > 7.5 million USD funding
- > 15 invited talks
- > 15 tutorials and short courses
- > 5 research awards



International collaboration with more than 8 countries

Collaborators





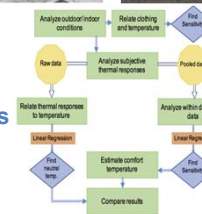
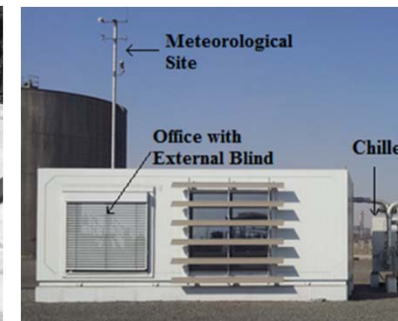
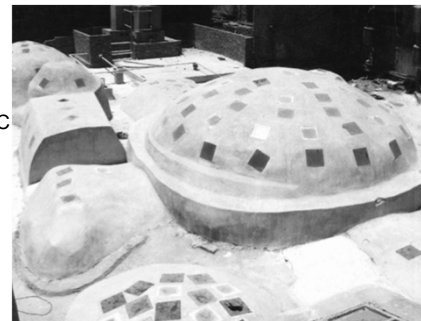
Sustainable Built Environment

Research Interests

- Digitizing Architectural Heritage
- Investigating the socio-cultural aspects of architecture in Qatar and the GCC
- Studying Human behavior in the built environment
- Exploring the impact of traditional arts in local architecture
- Architectural Identity

Research Projects

- NPRP 7th Cycle: Development of a Simple Tool To Design Energy-Efficient, Low-Emission, and Cost Effective Commercial Buildings
- NPRP 7th Cycle: The Design, Development & Use of Innovative Bio-Green Facades in Qatar: Towards improved urban microclimates and enhanced building thermal performance in Qatar
- Conference: GSM4Q 2019 Khaleeji Architecture (2017)

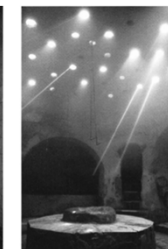


Faculty members

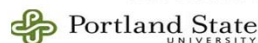
- Dr. Hatem Ibrahim
- Dr. Raffaello Furlan
- Dr. Djamel Boussaa
- Dr. Faris Khamidi
- Dr. Shaibu Garba
- Dr. Fodil Fadli
- Dr. Reza Mabadi
- Dr. Salim Ferwati

Key Outcomes (last 3 years)

- > 10 publications
- >2 PhD supervised
- > 2.5 million USD funding
- > 10 invited talks
- >9 tutorials and short courses
- >3 research awards
- International collaboration with more than 12 countries



Collaborators





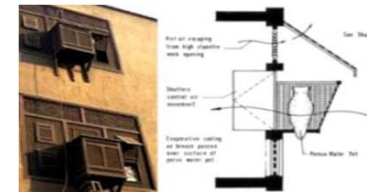
Building Technology and Architectural Apps

Research Interests

- Information Modeling BIM
- Energy efficiency
- Topology Optimization in BE
- Emergency Preparedness
- Intelligent Project management
- 3DP/Robotics/Parametrics
- Safety in Architectural Design

Research Projects

- NPRP S-11th Cycle: QRP
- NPRP S-11th Cycle: Smart Cities, Mobile communities and IoT Apps
- NPRP 9th Cycle: Role Development and application of a novel and integrated performance driven approach for assessing, benchmarking and improving BIM Competency of Qatar's construction industry practitioners
- NPRP 7th Cycle: Multi-Objective Tall Building Topologies-Optimizing for Sustainability, Economy and Structural Performance.
- NPRP 7th Cycle: Body cooling methods for improving endurance in hot environments at minimal energy
- NPRP 6th Cycle: CUBER: Critical Urban Buildings Emergency Response; An Intelligent decision-support system to support critical built facilities emergency preparedness and response to extreme events

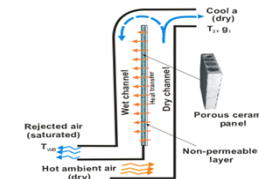


Faculty members

- Dr. Faris Khamidi
- Dr. Hatem Ibrahim
- Dr. Fodil Fadli
- Dr. Djamel Ouahrani
- Dr. Madhavi Indrangati
- Dr. Djamel Boussaa
- Dr. Mark Major

Key Outcomes (last 3 years)

- > 10 Journal publications
- > 2 PhD supervised
- > 4 million USD funding
- > 14 invited talks
- > 4 tutorials and short courses
- > 5 research awards
- International collaboration with more than 15 countries



Collaborators





Consultancy/Expertise in the AEC Sector

- **Sustainability, Impact Assessment and Energy Efficiency**
- **Digitization, BIM, IoT, 3DP/Robotics and AI Apps in AEC**
- **Digital Surveying and Historic Building Preservation**
- **Smart Cities/Intelligent Buildings**
- **Design for health and wellbeing**



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Thank you!

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