

Welcome to



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Head of Mechatronics Engineering Department



GUC is established in 2002, in cooperation with the State Universities of Ulm and Stuttgart, under the patronage of the Egyptian Ministry of Higher Education, the Ministry of Science, Research and Arts, State of Baden-Wuerttemberg, Germany.

It is supported by the German Academic Exchange Service (DAAD), the German Embassy, the Arab/German Chamber of Industry and commerce (AHK), the Federal Ministry of Education and Research, Germany, the State University of Tübingen and The State University of Mannheim.



## The German University in Cairo

- Independent University.
- A Non-Profit, Self-owned Institution.
- Accepts Donations from Local and International Institutions.
- Managed by a consortium of Germans and Egyptians with the vision of:

“Building a leading center of excellence in teaching and research that will effectively contribute to the general welfare nationally and internationally, as well as endeavor the scientific, technical, economic and cultural cooperation between Egypt and Germany”.

## GUC Campus Area

Total GUC Area:	577,000 m <sup>2</sup> (approx. 137 Feddan)
Total Used Area:	185,909 m <sup>2</sup> (approx. 45 Feddan)
<i>(Representing 33% of the total GUC Land Area)</i>	
Buildings Area:	60,000 m <sup>2</sup>
GUC Sports Area:	70,399 m <sup>2</sup> (approx. 17 Feddan)
Industrial Park:	40,000 m <sup>2</sup> (approx. 10 Feddan)
New Expanding Building Area has been expanded by:	150,000 m <sup>2</sup>







# GUC Hostel in Ulm



July 2007





March 2013



## The Characteristics of the German Education System:

**1**

**Unity of teaching and research even in the undergraduate phase**

**2**

**Practice-oriented teaching**

**GUC is a Research University**



# Study Programs



# 27 Study Programs

**1 ENGINEERING**

- Information Engineering & Technology
  - Networks
  - Communications
  - Electronics
- Media Engineering & Technology
- Computer Science & Engineering
- Digital Media Engineering & Technology
- Engineering & Materials Science
  - Materials Engineering
  - Design & Production Engineering
  - Mechatronics Engineering
  - Civil Engineering
  - Architecture Engineering

**2 BIOLOGICAL SCIENCES**

- Pharmacy & Biotechnology
- Biotechnology

**3 MANAGEMENT TECHNOLOGY**

- Technology – based Management
- Business Informatics
- General Management

**4 APPLIED SCIENCES & ARTS**

- Product Design
- Media Design
- Graphic Design

- Marketing
- Human Resources & Org Behaviour
- Accounting & Financial Control
- Economics
- Information Systems
- Operations & Production
- Innovation & Technology Management
- Finance
- International Business
- Strategic Management

**5 FACULTY OF POSTGRADUATE STUDIES & RESEARCH**

**Over 3500 students learning German simultaneously**  
(Representing the biggest German Language training centre worldwide with over 3500 Students learning German simultaneously)





**German students from Hochschule, ULM visited GUC for Practical study program and the use of the GUC advanced Festo lab**



**Students Visit from Hamburg University**



**Applied Arts students from Furtwangen university**



**Students Visit from Humboldt University of Berlin**



# Students Language and Study Trips to Germany



**22%** of the Total  
Number of  
Students  
Travelled to  
Germany  
over the Last 5  
Years





# Mechatronics Engineering Department Quick Overview



# MINR Lab

Medical Micro & Nano Robotics





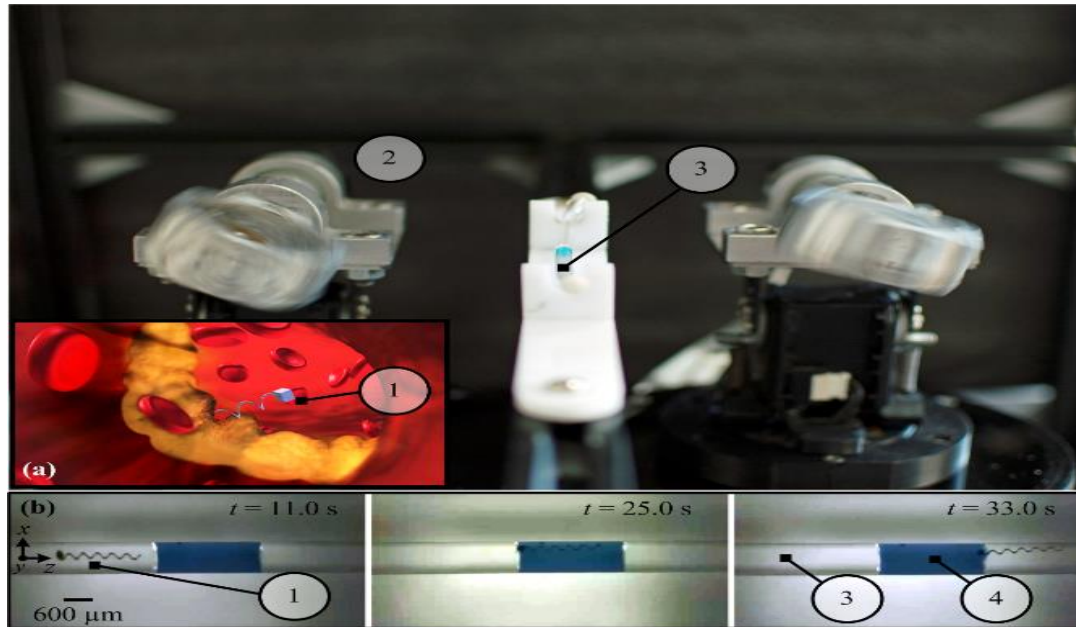


Figure. Penetration of blood clots is achieved using a helical microrobot (1) and a magnetic-based robotic system (2) with two rotating dipole fields. The helical microrobot is steered and propelled under the influence of the rotating magnetic fields that are generated using the two rotating dipole fields inside catheter segment (3). A schematic representation of clearing a clogged blood vessel using a microrobot.

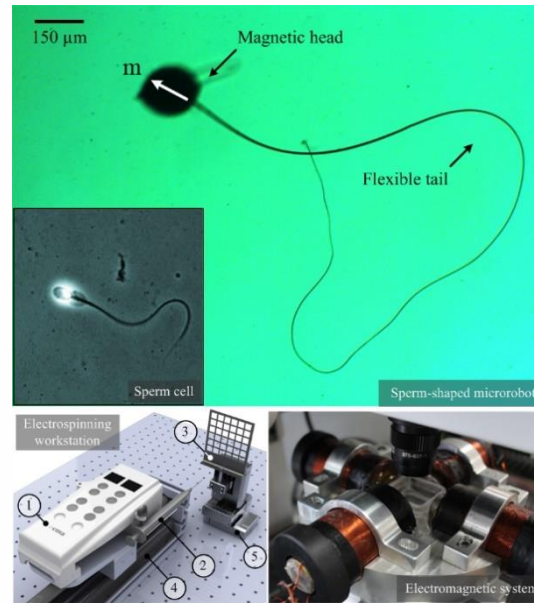
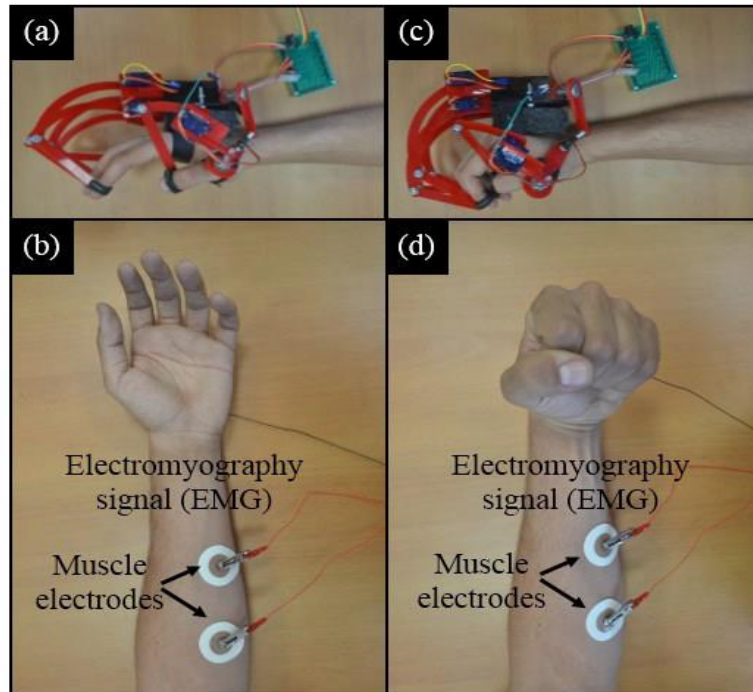


Figure. Sperm shaped microrobots are fabricated using electrospinning and controlled using an electromagnetic configuration under microscopic guidance.

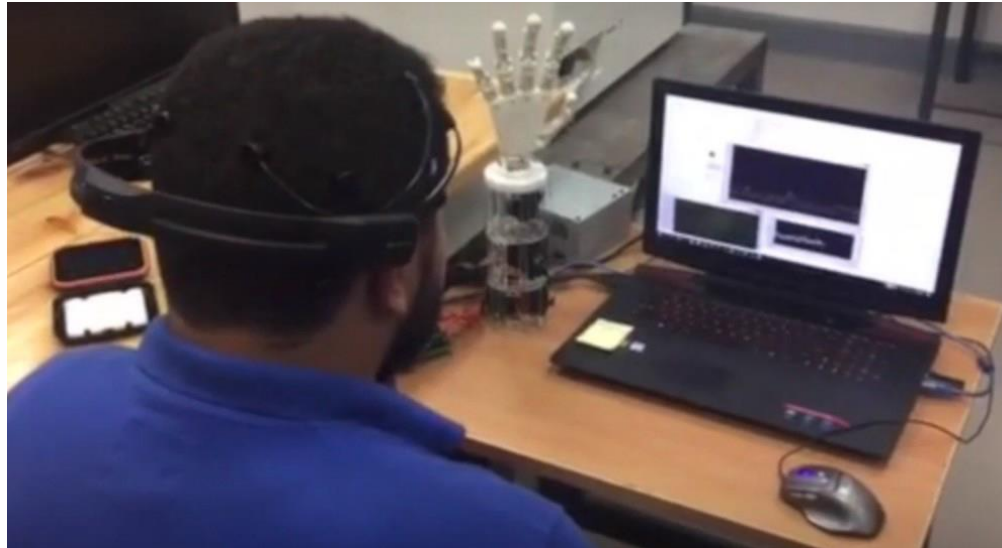
The research vision of the laboratory is dedicated to the development of novel micro sensors and actuators for nano-scale measurement and control

- Micro-optical Sensors Technology
- Biomedical Instrumentation and Robotics
- Neuroscience and Electrophysiology



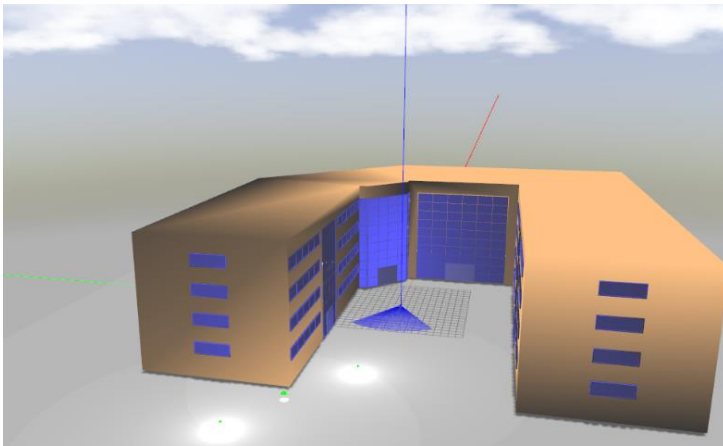


**Photograph for the research objectives to exploit the use of WGM in the electromyography (EMG) using optical sensors**

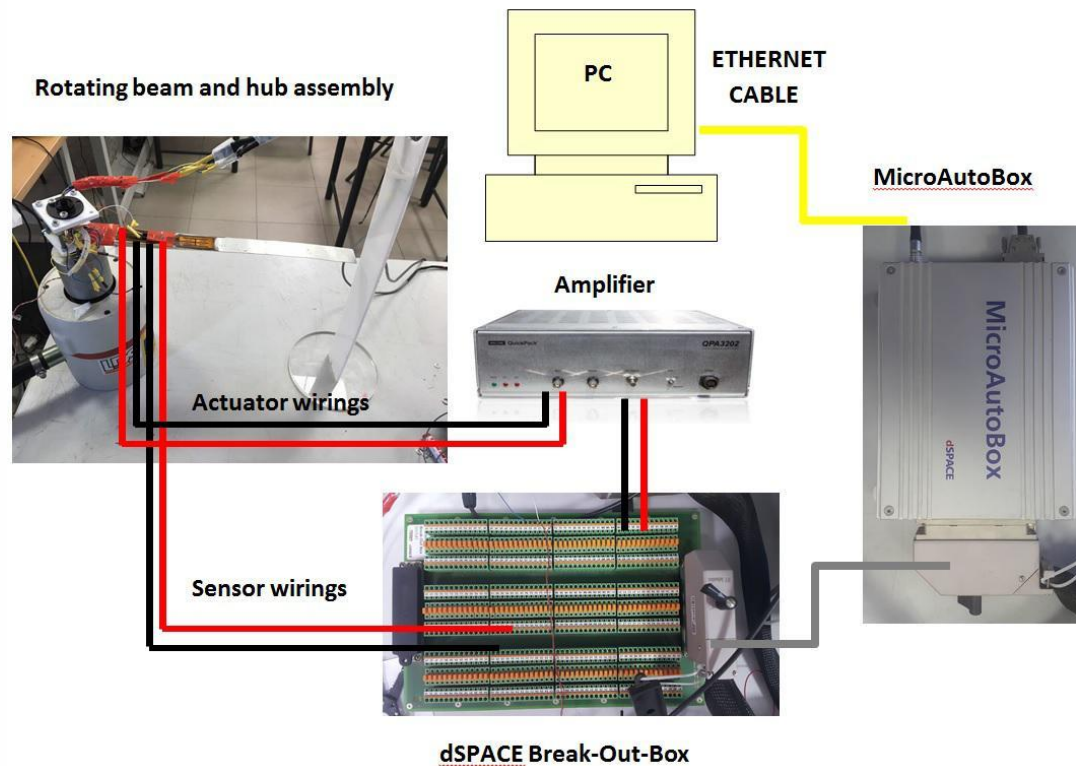


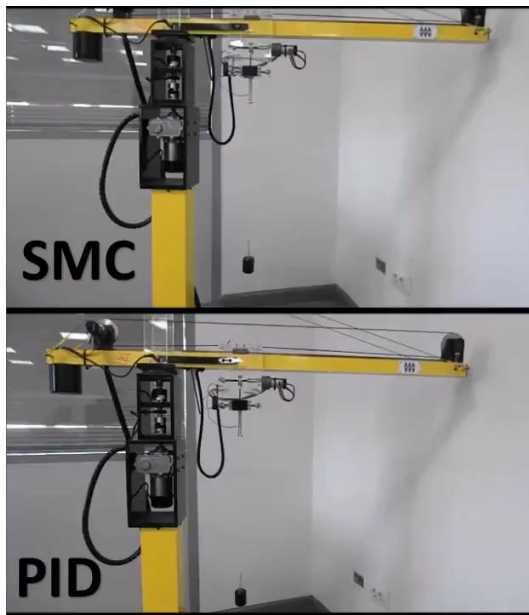
Typical brain computer interface

- Working on a broad spectrum of topics related to control systems theory and application.
- Developing nonlinear controllers as well as disturbance observers for aerial robots such as quadrotors as well as FWMAV



- Addressing the nonlinear dynamic behavior as well as the nonlinear control of flexible rotating blades








- In collaboration with the university of Waterloo, we are currently developing a passive wireless sensor node for biomedical applications where we try to develop a self-powered sensor to replace traditional wireless sensor nodes that are bulky and power demanding.
- Hope to get to know Prof. Yiannos Manoli, author of “CMOS Circuits for EM Vibration Transducers”.

- Group Formation in Multirobot Systems
- Metaheuristic Optimization-based Approach to Multirobot Task Allocation




A Khepera III robot

- Students develop their hardware to control their systems.
  - Microcontrollers (Pic, ATmega AVR-RISC-Controller, ARM Cortex...etc.)
  - Raspberry Pi
  - NI myRIO
  - Matlab/Simulink Automatic code generation
- 

- Renewable energy (wind energy-solar energy)
- Vortex tube
- Cavitation in Turbomachines and control valves
- Turbomachinery



- Fluid power
  - Pneumatic and hydraulic control
  - Electrohydraulics
  - In collaboration with Prof. Helduser of TU Dresden
  - IHA academy
- 



## GUC is Having Strategic Alliance with:

- TRUMPF
- FESTO Company
- DECKEL MAHO GILDEMEISTER Group
- FELDER
- WALTER
- ZWICK
- ZEISS
- Others.....















# EGYPT









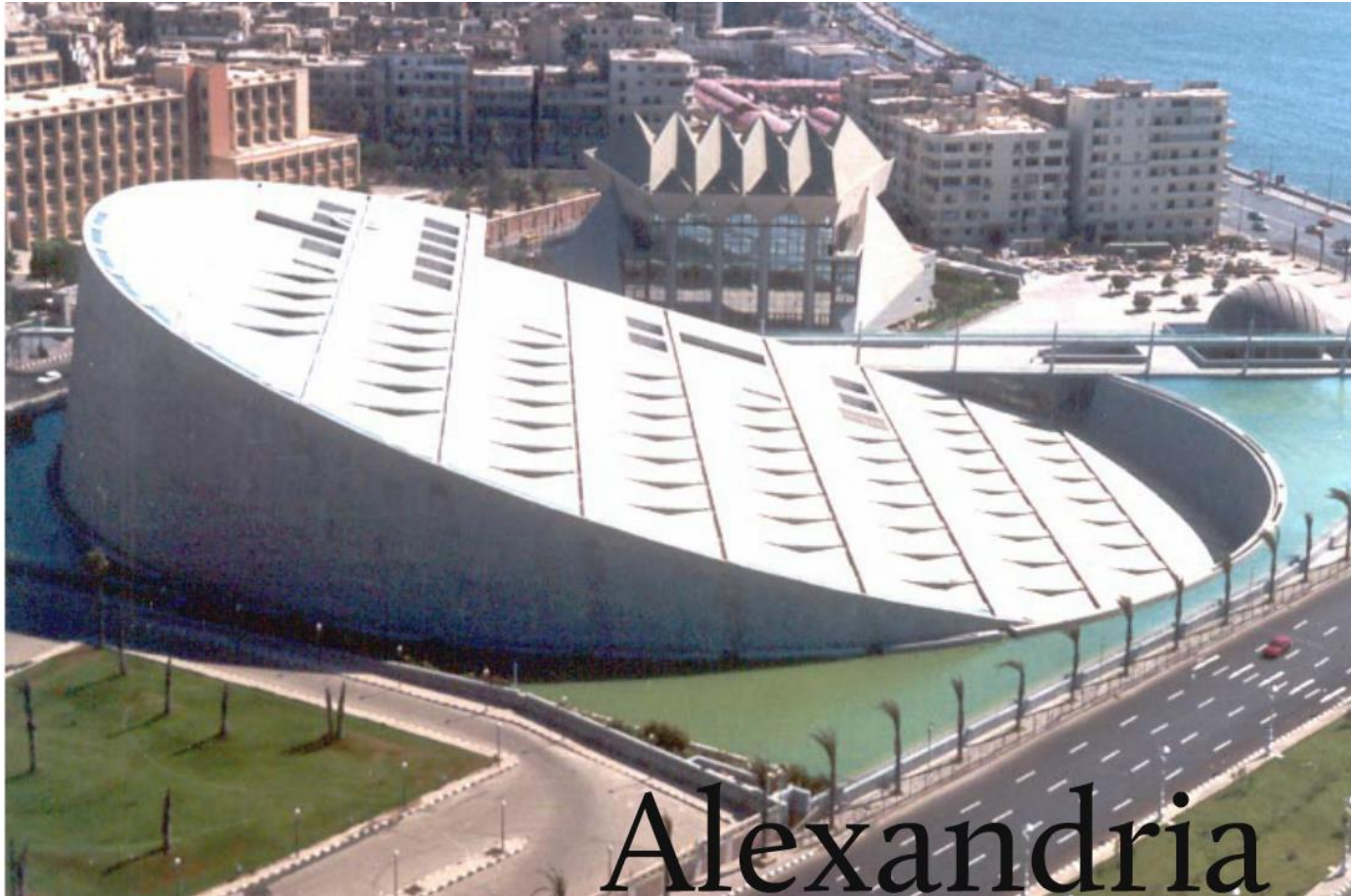






# Best cities to visit





# North coast





# Gouna

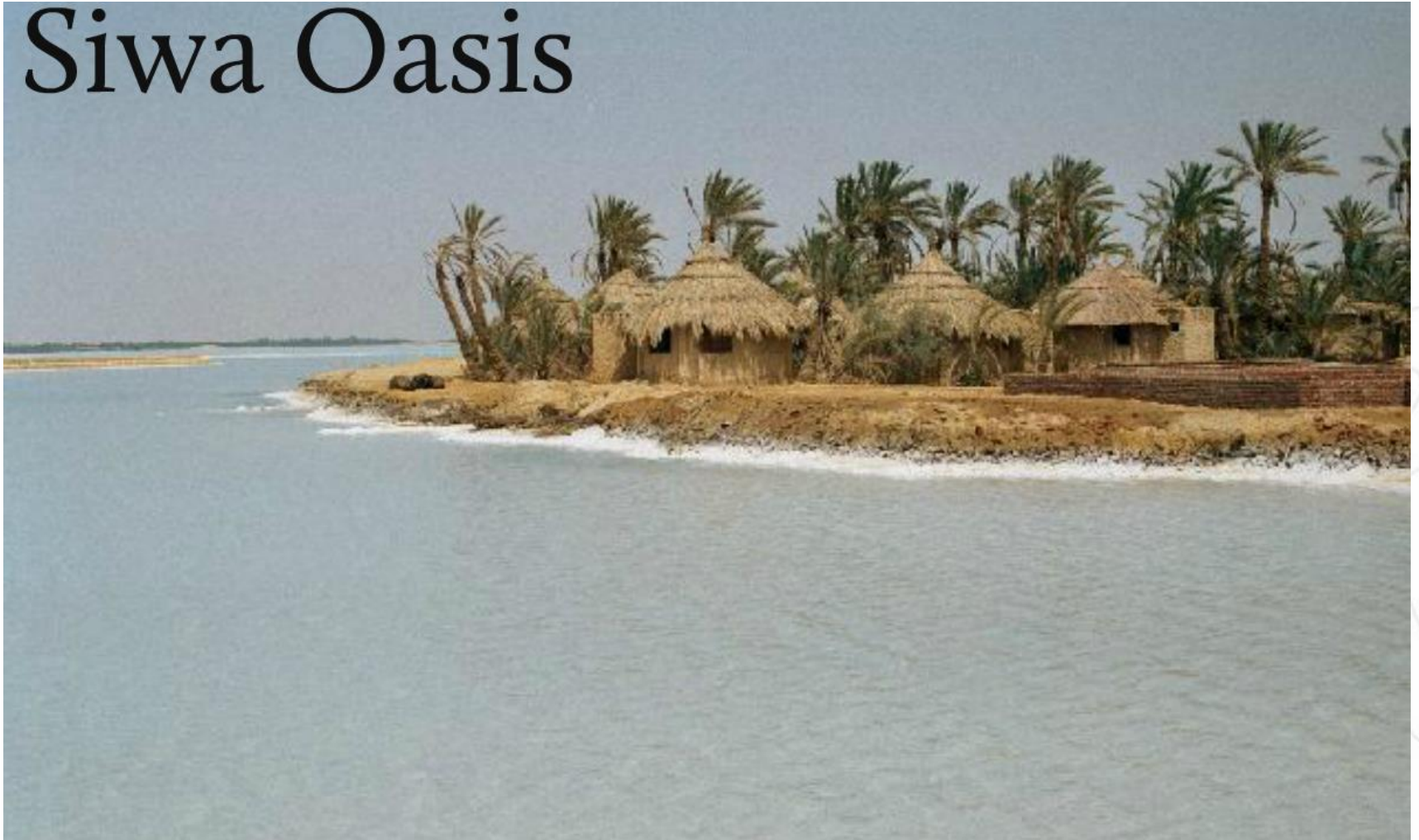






# Sharm EL Sheikh

# Siwa Oasis



# white desert



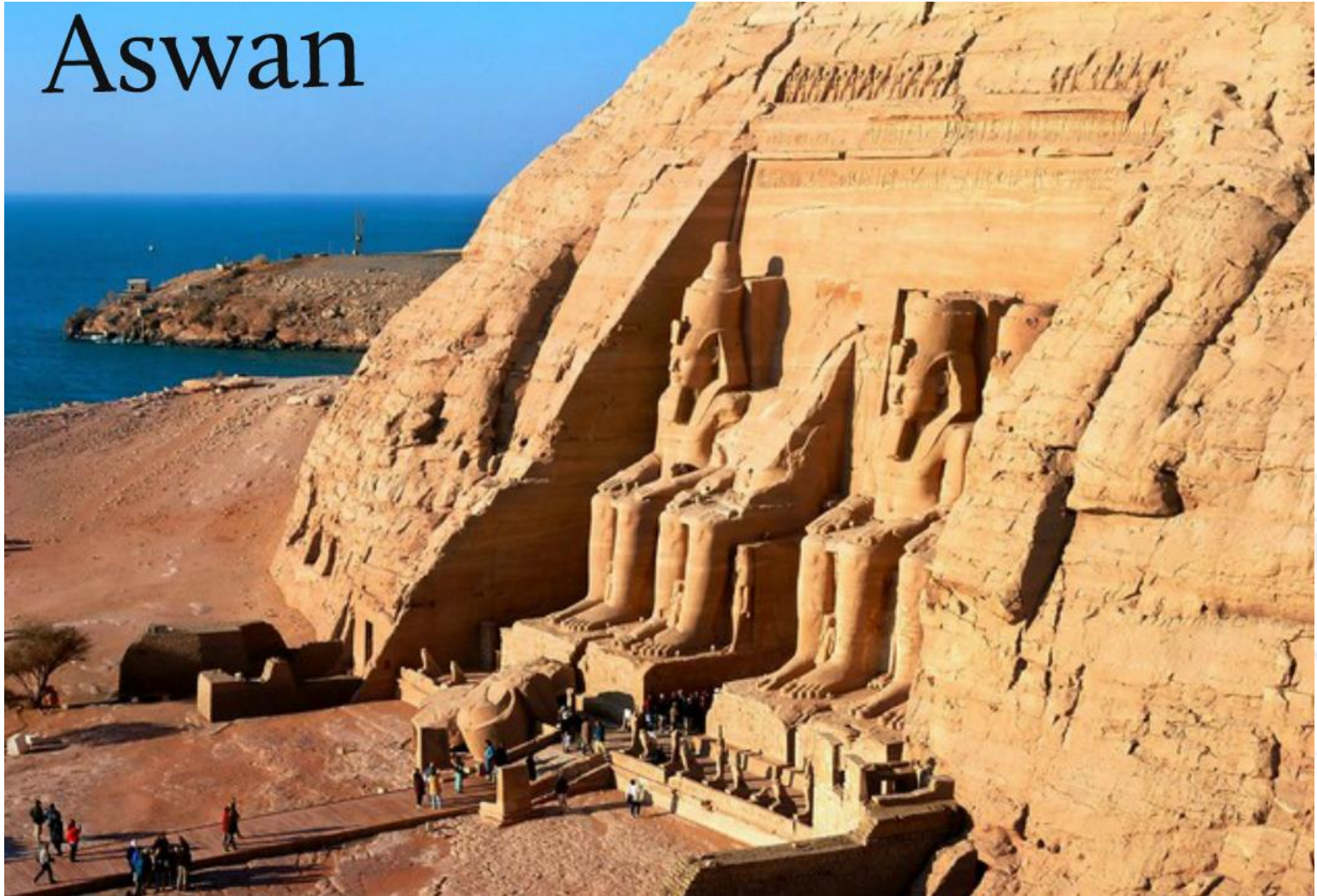




# Luxor



# Aswan





# Willkommen

أهلاً وسهلاً





Thank You





April 2016

