

# Academic CV

Mohammed Gamil

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## Personal:

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**Position:** Assistant Professor (Lecturer)  
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## Education:

**2011-2014** **Ph.D.** “Fabrication of High Sensitive Strain Gauge from Carbon-based Nanostructured Materials”  
**Materials Science and Engineering Department (MSE)**, Egypt-Japan University of Science and Technology (**E-JUST**), Egypt.  
**Supervisors:**  
Prof. Dr. Osamu Tabata, Kyoto University, **Japan**.  
Prof. Dr. Toshiyuki Tsuchiya, Kyoto University, **Japan**.  
Prof. Dr. Koichi Nakamura, Kyoto University, **Japan**.  
Prof. Dr. Ahmed Abd El-Moneim, E-JUST, **Egypt**.  
Prof. Dr. Ahmed Rashad Fath El-Bab, E-JUST, **Egypt**.

The Ph.D. dissertation was judged by **Prof. Sherief Sedky** the **Head of Zewail City of Science and Technology** at that time and **Prof. Taher El-Bitar** the **former Head of Metals Technology Department** and Consultant in Metal Forming and Heat Treatment at Central Metallurgical R&D Institute (CMRDI). Fortunately, **Prof. Ahmed El-Gohary** the **president of E-JUST** attended my Ph.D. defense and all the Japanese supervisors also attended through the video conference.

**2007-2010**

**M.Sc.** “Some Investigations on Low Temperature Cast Carbon Steel”

Mechanical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt.

My M.Sc. was a real-life problem existed at a factory at 10<sup>th</sup> of Ramadan city. This factory was manufacturing cast iron valves by casting technology. My supervisor **Dr. Ibrahim Mousa** was a consultant for this factory. So, I get this point and I succeeded to provide suitable solutions for the problem.

**Supervisors:**

**Prof. Dr. Taher Ahmed El-Bitar**, Head of Metals Technology, Department, Central Metallurgical R&D Institute (CMRDI), Egypt.

**Prof. Dr. Fouad Helmy Mahmoud**, Benha University, Egypt.

**Assoc. Prof. Dr. Ibrahim Mousa Ibrahim**, Benha University, Egypt.

**2000-2005**

**BSc.** Mechanical Engineering (Production and Design Section). The General Grade is Very Good. Mechanical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt.

## ***Research Area:***

1. Nano-materials (Graphene and carbon nanotubes) for sensing applications (Mechanical and Physical Sensors) such as strain gauge sensors and temperature sensors.
2. Welding and joining
3. Micro-electro-mechanical systems (MEMS)
4. Advanced functional metallic materials (Design and Processing).
5. Nanocomposites such as Aluminum with graphene nanoplatelets.
6. Steel processing and heat treatment

## ***Publications:***

1. **Mohammed Gamil**, W.M. Farouk, Mamdouh I. Elamy "Effect of Friction Stir Processing Parameters on the Mechanical and Dynamic Responses of AA 5052-H32" Engineering Research Journal (ERJ), vol 51, pp. 188-198, **2022**.
2. Taher El-Bitar, Maha El-Meligy, **Mohammed Gamil** "Metallurgical and mechanical investigation of TIG arc weldments for API 32" gas pipe" Acta Metallurgica Slovaca, vol 28, pp. 19-24, **2022**.
3. **Mohammed Gamil**, Nagih M Shaalan, and Ahmed Abd El-Moneim, "Fabricating a highly sensitive graphene nanoplatelets resistance-based temperature sensor," Sensor Review, vol 41, pp. 251-259, **2021**.
4. **Mohammed Gamil** and Mohamed MZ Ahmed, "Investigating the Thermo-Mechanical Properties of Aluminum/Graphene Nano-Platelets Composites Developed by Friction Stir Processing," International journal of precision engineering and manufacturing vol. 21, pp. 1539-1546, **2020**.
5. **Mohammed Gamil** and Taher El-Bitar, "Design and Manufacturing of a Non-Standard Chain Parts for a Scraper Chain Conveyor: A Case Study" key Engineering Materials, vol. 786, pp 335-341, **2018**.

6. **Mohammed Gamil**, Ahmed M. R. Fath El-Bab, Ahmed Abd El-Moneim, and Koichi Nakamura, "Ultra-high-sensitivity Graphene-based Strain Gauge Sensor: Fabrication on Si/SiO<sub>2</sub> and First-principles Simulation" *Sensors and Materials*, vol. 30 No. 9(2), pp. 2085-2100, **2018**.
7. Mohammed, S.; **Gamil, M.**; Mohammed, S., Mechanical, "Dynamic Behaviour of Epoxy/Mwcnts and Epoxy/Al<sub>2</sub>O<sub>3</sub> Nanocomposites, ", *Nano Sci Nano Technol* vol. 11, pp. 121-135, **2017**.
8. Sahour Sayed, **Mohammed Gamil**, Ahmed Fath El-Bab, Koichi Nakamura, Toshiyuki Tsuchiya, Osamu Tabata and Ahmed Abd El-Moneim, "Graphene Film Development on Flexible Substrate Using a New Technique: Temperature Dependency of Gauge Factor for Graphene-based Strain Sensors", *Sensor Review*, vol. 36, pp. 140-147, **2016**.
9. S. Sayed, **M. Gamil**, F. El-Bab, M. Ahmed, A. El-Moneim, and A. A. El Moneim, "LASER Reduced Graphene on Flexible Substrate for Strain Sensing Applications: Temperature Effect on Gauge Factor," *Key Engineering Materials*, vol. 644, pp. 115-119, **2015**.
10. **M. Gamil**, O. Tabata, K. Nakamura, A. M. El-Bab, and A. A. El-Moneim, "Investigation of a new high sensitive micro-electromechanical strain gauge sensor based on graphene piezoresistivity," *Key Engineering Materials*, vol. 605, pp. 207-210, **2014**.
11. **M. Gamil**, K. Nakamura, F. El-Bab, M. Ahmed, O. Tabata, and A. Abd El-Moneim, "First-principles simulation on orientation dependence of piezoresistivity in graphene nanoribbon," *International Conference on Engineering and Technology (ICET)*, IEEE Xplore Digital Library, pp. 1-6, **2014**.

12. **M. Gamil**, H. Nageh, I. Bkrey, S. Sayed, A. M. F. El-Bab, K. Nakamura, O. Tabata, and A. A. El-Moneim, "Graphene-Based Strain Gauge on a Flexible Substrate," *Sensors and Materials*, vol. 26, pp. 699-709, **2014**.
13. **M. Gamil**, K. Nakamura, A. M. F. El-Bab, O. Tabata, A. Abd El-Moneim, "Simulation of graphene piezoresistivity based on density functional calculations," *Modeling and Numerical Simulation of Material Science*, vol. 2013, pp. 117-123, **2013**.
14. **M. Gamil**, K. Nakamura, A. M. F. El-Bab, O. Tabata, M. Serry, and A. A. El-Moneim, "Evaluation of strain gauge factors of graphene ribbon models based on first-principles electronic-state calculations," in *Innovative Engineering Systems (ICIES), First International Conference on Innovative Engineering Systems (ICIES)*, IEEE Xplore Digital Library, pp. 52-57, **2012**.
15. T. El-Bitar, **M. Gamil**, I. Mousa, and F. Helmy, "Development of carbon—Low alloy steel grades for low temperature applications," *Materials Science and Engineering: A*, vol. 528, pp. 6039-6044, **2011**.

### ***Research projects:***

1. Koichi Nakamura, Ahmed Abd El-Moneim, Ahmed Fath El-Bab, **Mohammed Gamil** "First Principles Electronic Structure Calculation of Piezoresistive Effect of Nanoscale Material and Its Application to Nanosensors" STDF, ID 4326.
2. **Mohammed Gamil**, Mohamed Zaky "Enhancing the Thermal Conductivity of Aluminum Alloy 5052-H32 by adding Graphene nano-platelets Using Friction Stir Processing" Northern Border University, KSA (ENG-2018-3-9-F-7814).
3. Mohammd Tashkandi, **Mohammed Gamil** "Study the Effect of Graphene Addition to Aluminum Alloy 6061 by Continuous Drive Friction Welding" Northern Border University, KSA (ENG-2018-3-9-F-7785).

## ***Professional Experiences:***

- 2020 - Now**                    **Assistant Professor**, Mechanical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt.
- 2021 - Now**                    Arab Academy for Science Technology and Maritime Transport - Cairo Campus: Cairo, EG
- 2022 - Now**                    Akhbar El Yom Academy: 6 October, Giza, EG
- 2017 - 2020**                    **Assistant Professor**, Mechanical Engineering Department, Collage of Engineering, Northern Border University, Saudi Arabia.
- 2014 - 2017**                    **Assistant Professor**, Mechanical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt.
- Assistant Professor**, Mechanical Department, Al-Ameeria Integrated Technical Education Cluster.
- 2013 - 2014**                    **Visiting researcher**, Tabata Lab., Department of Micro Engineering, Graduate School of Engineering, **Kyoto University, JAPAN**. During my visit to Tabata Lab. I achieved a lot of experience in MEMS. Now, I'm able to make a complete fabrication at the clean room. In addition, I achieved the ability to deal with all the machines used for the fabrication process such as spinning of photo resist and developer, lithography, thermal evaporation, sputtering, optical microscope and scanning electron microscope.
- 2010 - 2013**                    **Ph.D student**, Materials Science and Engineering Department (MSE), Egypt-Japan University of Science and Technology (**E-JUST**).
- 2009 - 2010**                    **Lecturer**, Mechanical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt.
- 2007 – 2009**                    **Research and teaching assistant**, Mechanical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt.

## ***Industrial Experiences***

**2005-2006** Working at **Emex** company for handling systems at 10<sup>th</sup> of Ramadan city. **Emex** is one of the leading companies for industrial services. I designed and fabricated all the different types of the conveyor system and bucket elevators. Moreover, I provided a lot of supporting technical information for different companies.

**2006-2007** Working at **Optical Technology** company for Micro-electro-mechanical systems (MEMs) at 10<sup>th</sup> of Ramadan city. This company was the only one in the Arab world who was working in MEMs at that time. The company was working on fabricating the CDs and DVDs by the LEGA process using an advanced robot for making the different processes starting from photoresist deposition until sputtering. Working at that company gained me a lot of experience in the MEMs fabrication.

**2007-2011** Private working in machine design and fabrication.

### **I have experience in the following branches:**

**1. *Handling systems design and fabrication.***

I did many works for various companies in that issue such as Nestlé company for bottled water and Biscomisr company.

**2. *Motor control circuits design and fabrication.***

I have the ability to do any motor control circuit using the basic logic control.

**3. *PLC (Small compact units).***

I have the ability for programing PLC units such as Schneider units.

**4. *Liquid filling machines.***

I fabricated several vertical liquid filling machines controlled by PLC.

**5. *Sheet metal work.***

Shearing, blanking, piercing, bending, laser cutting, plasma cutting

**6. *Machining.***

Turning, milling, shaping, drilling, grinding .....etc

### ***Teaching Experience for Undergraduates:***

1. SolidWorks
2. Engineering Drawing and Projection
3. AutoCAD
4. Theory of Machines
5. Mechanics (Statics + Dynamics)
6. Manufacturing Processes Lab
7. Probability and Statistics
8. Materials Science Lab
9. Manufacturing Processes
10. Mechanical Vibrations
11. Fundamentals of Materials Science
12. Mechanical Design (2)
13. Strength of Materials
14. Measurements
15. Mechanical Design (1)
16. Graduation Project
17. Pneumatic and Hydraulic Systems
18. Micro Electromechanical Systems (MEMS)
19. Programmable Logic Controllers
19. Materials Handling
20. Powder Metallurgy
20. Facility Planning
21. Machine tool design

### ***Teaching Experience for Postgraduates:***

- 1- Design of Experiments
- 2- Advanced Measurements

### ***Languages:***

**Arabic** The mother language

**English** TOEFL score 87 IBT (580 paper-based test) on 2013