

Khalil Ibrahim, Ph.D.



Mechatronics Engineering Department, Assiut University,
Assiut, Egypt.

Mobile: +201155977599, +201501111468

E-mail: khalil.ibrahim@aun.edu.eg, khalil.ibrahim77@gmail.com

Research Interests

Robot Operation System (ROS)/Moveit, Soft Robotics, Surgical Robot System, minimally invasive surgery robot, Vibration control arm, Medical robot, Flexible Robot Arm, Robot manipulator and Intelligent Control System.

Education

- 2010/02-2013/08 Ph.D. Mechatronics and Robotics Engineering “Development of Endoscopic Manipulator System for Minimally Invasive Robotic Surgery”** Egypt-Japan University of Science and Technology, Egypt.
- 2006/05-2010/02 M.Sc. Mechanical Engineering “Intelligent Control of Flexible Robot Arm”** Assiut University, Egypt.
- 1996/09-2001/07 B. Sc. Mechanical Engineering (Mechatronics Section),** Assiut University, Egypt.

Journal Publications

- [1] E. G. Shehata, Mariem Y. William, A. A. Hassan, **K. Ibrahim** “Development of Powered Semi-Active Ankle- Foot Prosthesis with Fuzzy Logic – PI Controller” Journal of Engineering Sciences (JES) Assiut University Faculty of Engineering, Vol. 52, Issue 1, Page 1-15, 2024.
- [2] Mariem Y. William, E. G. Shehata, A. A. Hassan, **K. Ibrahim** “The Analysis of the Concise Semi-Active Ankle Prosthetic by Using the ANSYS Program” Journal of Optoelectronics Laser, Vol. 42, 2023.
- [3] E. G. Shehata, Mariem Y. William, A. A. Hassan, **K. Ibrahim** “Development and Control of Concise Semi-Active Ankle Prosthesis” WSEAS Transactions on Systems and Control. Vol. 18, 2023.
- [4] Mariem Y. William, **K. Ibrahim**, A. A. Hassan, E. G. Shehata “Development and control of a semi active prosthetic ankle”, Journal of advanced engineering (JAE), Vol. 42, No. 2, 2023.
- [5] Magdi Mohsen, Abdelfatah M Mohamed, S. M. Ahmed and **K. Ibrahim** "BILATERAL CONTROL OF A 2-DOF TELEOPERATED MANIPULATOR USING UDP SCHEME" Ain Shams Engineering Journal (ASEJ) by **EL SEVIER**, Nov., 2022.

- [6] Yao Jinghong, Muhammad Junaid Irshad, **K. Ibrahim**, Shiza Zahoor, Jammu, Kashmir "Impact of the coronavirus pandemic on mental prosperity of medical care laborers in tertiary consideration hospital A case report" **Medicine** Vol. 101- 32, **2022**.
- [7] M. Elewa, G. El-Saady, **K. Ibrahim**, M. Tawfek, H. Elhossieny "Evaluation of Digital Brixmeter Performance for Brix Measurement In Raw Sugar Solution" Journal of Engineering Sciences (JES) Assiut University Faculty of Engineering, Volume 50, Issue 3, **May 2022**.
- [8] Farag Saad. Farag, **K. Ibrahim**, Mohamed AbuOkail, Wael Mahmoud Khaireldin, Ibrahim Mohammed Hassb Allah "Enancement Mechanical Properties of Verical Compensations Friction Stir Welded Joints, Through Changeing Post-Weld Heat-Treatmret Contditions" Journal of Al-Azhar University Engineering Sector (JAUES), April 2022.
- [9] Mohamod Nady, Mohmoud Heshmat, **Khalil Ibrahim** and Ahmed saad "A Solution for Water Management and Leakage Detection Problems Using IoTs-based Approach" under review in Internet of Things journal by **EL SEVIER**, **Sep., 2021**.
- [10] Jing Xiong, Changfu Xu, **Khalil Ibrahim**, Hao Deng and Zeyang. Xia "A Mechanism-image Fusion Approach to Calibration of an Ultrasound-guided Dual-Arm Robotic Brachytherapy System" February 2021 IEEE/ASME Transactions on Mechatronics Pp.(99):1-1,2021.
- [11] **Khalil Ibrahim**, and O. M. Omisore "Development of a Robotic System for Prostate Interventional Therapy " The International Journal of Medical Robotics and Computer Assisted Surgery, Jan. 2021.
- [12] Mark Adel, **Khalil Ibrahim**, Abo El-Makarem Khalil" Vibration Control of Smart Cantilever Beam Using Finite Element Method" Alexandria Engineering Journal (AEJ) by **EL SEVIER**, Vol. 58, Issue 2, Pp., 591-601, June, 2019.
- [13] **K. Ibrahim** and Abdel Badie Abdel A. Sharkawy* " A Hybrid PID Control Scheme for Flexible Joint Manipulators and A Comparison with Sliding mode control " Ain Shams Engineering Journal (ASEJ) by **EL SEVIER**, Vol. 9, Pp. 3451–3457, 2018.
- [14] **K. Ibrahim***, Ahmed Ramadan, Mohamed Fanni, Yo Kobayashi, Ahmed A. Abo-Ismael and Masakatsu G. Fujie," Development of a New 4-DOF Endoscopic Parallel Manipulator Based on Screw Theory for Laparoscopic Surgery", **Mechatronics**, Volume 28, Pp. 4–17, June 2015. (**JCR IF=2.978**)
- [15] Mark Adel, **Khalil Ibrahim**, Abdel-Rassoul Gad, Abo El-Makarem Khalil "Development of Dynamic Model for Vibration Control of Flexible Beam" Journal of Engineering Sciences Assiut University Faculty of Engineering, Vol. 44, No. 5, Pp., 555 – 565, September 2016.

Conference Publications

- [1] Farag Saad. Farag, K. Ibrahim, Mohamed AbuOkail, Wael Mahmoud Khaireldin, Ibrahim Mohammed Hassb allah "An investigation of post-weld heat treatment of friction stir welded aluminium blanks AA2024 embedded with AA7075" 20th INTERNATIONAL CONFERENCE ON APPLIED MECHANICS AND MECHANICAL ENGINEERING (AMME), March 2022.
- [2] Ahmed A. Abdeen, **Khalil Ibrahim** and Abo-Bakr M. Nasr, "Active Suspension System Design Using Fuzzy Logic Control and Linear Quadratic Regulator", the 4rd International Conference on Advanced Intelligent Systems and Informatics (AISI'18), Cairo, Egypt AISI, Cairo, Egypt, Sept. 9-11, 2018.
- [3] Magdi Mohsen, **Khalil Ibrahim** and Abdelfatah M Mohamed, "Design and Control of a Two Degree of Freedom Teleoperated Manipulator " 2nd International Conference on Automation, Control and Robotics (ICACR 2018), Shanghai, China | August 8-10, 2018.
- [4] Mohamed Atia, Omar Salah, Bishoy Medhat, **K. Ibrahim**, "Design and Analysis of Low Cost Upper Limb Exoskeleton" The 12th IEEE International Conference on Computer Engineering and Systems (ICCES 2017), Dec. 2017.
- [5] Issa Zidane and **K. Ibrahim** "Wavefront and A-star Algorithms for Mobile Robot Path Planning" the 3rd International Conference on Advanced Intelligent Systems and Informatics (AISI'17), Cairo, Egypt, Sept. 9-11, 2017.
- [6] **K. Ibrahim**, Nouby Ghazaly and Ahmed S.Ali "Simulation Control of an Active Suspension System Using Fuzzy control & H^∞ Control Methods" 16th International Conference on Control, Automation and System ICCAS 2016, HICO, Gyeongju, Korea, Oct. 16-19, 2016.
- [7] **K. Ibrahim** and Ahmed Saad "Development a Force Feedback Control of Robot Manipulator" the 2th International Conference on Control, Automation and Robotics (ICCAR 2016) in Hong Kong, April 28-30, 2016.
- [8] Alaa Khalifa, Ahmed Ramadan, **K. Ibrahim**, Mohamed Fanni, Samy Assal and Ahmed Abo-Ismael "Workspace Mapping and Control of a Teleoperated Endoscopic Surgical Robot" the 19th International Conference Methods and Models in Automation and Robotics (MMAR) 2014, pp. 675 - 680 ,2-5 Sept. 2014.
- [9] **K. Ibrahim**, Ahmed Ramadan, Mohamed Fanni, Yo Kobayashi, Ahmed A. Abo-Ismael and Masakatsu G. Fujie, "Screw Theory Based-Design and Tracking Control of an Endoscopic Parallel Manipulator for Laparoscopic Surgery" 2013 IEEE International Conference on Robotics and Automation , ICRA2013, Germany, Karlsruhe, May 6 - 10, 2013.
- [10] **K. Ibrahim**, A. Ramadan, M. Fanni, Yo Kobayashi, A. Abo-Ismael and Masakatsu G. Fujie "Design and Workspace Analysis of a New Endoscopic

- Parallel Manipulator” the 12th International Conference on Control, Automation and System ICCAS 2012, ICC, Jeju Island, Korea, Oct. 17-21, 2012.
- [11] **K. Ibrahim**, A. Ramadan, M. Fanni, Yo Kobayashi, A. Abo-Ismaail and Masakatus G. Fuji “Kinematic Analysis and Control of limited 4-DOF Parallel Manipulator Based on Screw Theory” IEEE International Conference on Systems, Man, and Cybernetics IEEE SMC 2012, COEX, Seoul, Korea, Oct. 14-17, 2012.
- [12] **K. Ibrahim**, Ahmed Ramadan, Mohamed Fanni, Yo Kobayashi, A. Abo-Ismaail and Masakatsu G. Fujie, ”Control System Simulation for Endoscopic Surgical Manipulator Based on Virtual Chain Approach” In Proc. IEEE-RAS 1st International Conference on Innovative Engineering Systems, ICIES2012, Alexandria Egypt, 2012.
- [13] **Khalil Ibrahim**, Ahmed Ramadan, Mohamed Abdellatif, Ahmed Fath El-Bab, and Ahmed Abo-Ismaail “Development of a Dexterous Endoscopic Manipulator Based on Parallel Mechanism” Proceedings of IEEE International Conference on Intelligent Computing and Intelligent Systems, ICIS2011, Guangzhou, China, Nov., 2011.
- [14] **Khalil A. K.**, Ayman A. Aly and Ahmed Abo. Ismaail, “Adaptive Based Block Fuzzy Controller of Flexible Robot Arm”, at the International Conference on Intelligent Systems and Control (IASTED), November 16 to 18, Orlando, USA, 2008.
- [15] **Khalil A.K.**, Ayman A. Aly and Ahmed Abo. Ismaail. " Intelligent Control System Of Flexible Arm" International workshop on Mechatronics Education, Luxor, Egypt. Feb. 13-16, 2006.
- [16] **Khalil A.K.**, Ayman A. Aly and Ahmed Abo. Ismaail “Tip Position Control of a Single Flexible Arm”, Proceedings of the 2nd International Conference on Mechatronics, ICOM'05 Kuala Lumpur, Malaysia. May 2005.
- [17] **Khalil A.K.**, Ayman A. Aly and Ahmed Abo. Ismaail “Dynamic Modeling and Mode Shape Analysis Of A Single Flexible Arm" Proceedings Of IMEC2004 International Mechanical Engineering Conference December 5-8, Kuwait, 2004.

THESES SUPERVISIONS

- 1-Mobile robot path planning in dynamic environments (M.Sc.) 2018.
- 2- Vibration Control Analysis Through Simulated Model of Flexible Beam (M.Sc.) 2018.
- 3- Developing an Intelligent Control System for The Electro-Hydraulic Servo System (M.Sc.) 2019.

4-Modeling and control of a two degree of freedom teleoperated manipulator (M.Sc.) 2020.

5- Smart Automation and process control of sugar industry (M.Sc.) 2022.

6- Developing a Virtual Prototyping of a Semi Active Trans-Femoral Prosthetic Leg Using ADAMS (Ph. D) 2023.

7- Enhancement of Friction Stir Welding Nonferrous Metals by pre-Heating Technique (Ph. D) **going on.**

8- Path Planning Algorithm for Logistics Mobile Robot **going on.**

9- Formation Control of Multi-Agent Systems **going on.**

Professional Experience

| | |
|-------------------|---|
| 2023/09- Now | Dean College of Industry and Energy Technology, New Assiut Technological University (NATU), New Assiut city, Egypt. |
| 2022/09- Now | Member of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) |
| 2022/12- 2023/08 | Head of Control College of Engineering, Sphinx University, New Assiut City, Egypt. |
| 2021/09 – 2023/08 | Associate Professor, Mechatronics Engineering, Sphinx University, New Assiut city, Egypt. |
| 2020/06 - Now | Associate Professor, Mechatronics Engineering Department, Faculty of engineering, Assiut University, Egypt. |
| 2018/09 – 2020/04 | Assistant Professor, Shenzhen Institutes of Advanced Technology (SIAT), Shenzhen, China. |
| 2014/04 - 2018/09 | Assistant Professor, Mechanical Engineering Department, Assiut University, Egypt. |
| 2015/05 – 2018/08 | Training Director in Integrated Technology Transfer Unit (ITTU), Assiut University, Egypt |
| 2010/02 - 2013/08 | Ph.D. Student in Egypt-Japan University of Science and Technology (E-JUST) |
| 2011/01 – 2012/01 | Exchange Researcher, Waseda, Japan |
| 2006/05 – 2010/02 | Assistant Lecturer, Mechanical Engineering Department, Assiut University, Egypt. |
| 2001/11 – 2006/04 | Research and teaching assistant, Mechanical Engineering Department, Assiut University, Egypt. |

Participation in the committee as Reviewer of some international conferences

1. 2023 the 4th International Conference on Artificial Intelligence, Robotics and Control (AIRC 2023) which will be held during May 9-11, 2023 in The British University in Egypt, Cairo, Egypt.
2. The 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019) will be held on Macau, China, November 3 – 8, 2019
3. The 5th International Conference on Real-time Computing and Robotics (IEEE RCAR) in Irkutsk, Russia, on August 4-9, 2019.
4. The International Conference on Innovative Trends in Computer Engineering (ITCE'2019), Aswan, Egypt. Feb., 2-4, 2019.
5. The 18th International Conference on Control, Automation, and Systems (IEEE ICCAS), South Korea. Oct.17-20, 2018.

Projects

| | |
|-----------------|---|
| 2020/10-2021/08 | Involving the Industry 4.0 and automation processes to the manufacturing technologies (Third project I4) in Egypt. This grant is support by Academic of Scientific Research and Technology (ASRT) and Science and Technology Center of Excellency (STCE), Egypt. |
| 2018/09-2020/03 | Ultrasound-guided prostate brachytherapy for dual-arm robot “基于超声导引的前列腺近距离治疗双臂机器人研究” ID: JCYJ20170413162458312 hosted by Shenzhen Institute of Advanced Technology Chinese Academy of Science. |
| 2015/06-2018/09 | Design, development and manufacturing of floating fish feed extruder complete production plant (ASRT-TDMSP) |
| 2012/06-2014/09 | ID:4100 " Development of Endoscopic Manipulator System for Minimally Invasive Robotic Liver Surgery " (STDF) |
| 2004/04-2006/03 | ID: A-085-10 “ Development of Mechatronics Courses Undergraduate Project ” (DMCUP) in Faculty of Engineering, Assiut University. |

Scholar googles

<https://scholar.google.com/citations?user=iXGdyy8AAAAJ&hl=en>

Research gate

https://www.researchgate.net/profile/Khalil_Ibrahim9

Awards and Achievements

1. Short-term Travel Grants to South Korea Sponsored by Korea Tech University, South Korea in Jan, 2018.
2. Award recognition best graduation project 2016 “Intelligent Assistive Limb Robot” in mechatronics engineering from Egyptian engineers Syndicate.
3. Certificate of appreciation for effective participation and whole activities in the scientific sessions on the conference of 4th Assiut University international conference on mechanical engineering advanced technology for industrial production, Assiut University 2006.
4. My team won third place in the competition robocon Egypt 2009
5. The distinct student over the five years in the faculty of Engineering, Assiut University, Assiut, Egypt
6. Egypt Government Research Scholarship, 2010. Doctoral Research Fellowship, (three Years). Ministry of Education,
7. STDF project ID:4100 " Development of Endoscopic Manipulator System for Minimally Invasive Robotic Liver Surgery
8. Short-term Travel Grants to Japan Sponsored by Kyushu University, Japan
9. Long- Term travel grants to Japan Waseda University.
- 10.Syndicate of Egyptian Engineers Award for Second Class Honor, 2002.
- 11.Ranked 2nd in class during all University years (Class Size Ranging from1996-2001).
- 12.The Prize of Prof. Dr. Mohamed Ramadan El-Sadik (2nd year Mech.), Faculty of Engineering, Assiut University, 1999.
- 13.Scientific primacy award on the day of honoring the superior students in Egyptian Universities, October 6th University, 1999.

Professional Activities

| | |
|--------------|---|
| October 2018 | IEEE International Conference on Cyborg and Bionic Systems (CBS2018), Shenzhen, China, October 25-27, 2018. |
| Sept., 2018 | The 3rd International Conference on Advanced Intelligent Systems and Informatics (AISI'17), Cairo, Egypt, Sept. 9-11, 2018. |
| Dec., 2017 | The 12th IEEE International Conference on Computer Engineering and Systems (ICCES 2017), in Cairo, Dec. 2017. |
| 2016 | 2th International Conference on Control, Automation and Robotics (ICCAR 2016) in Hong Kong, April 28-30, 2016. |
| 2015 | Attend the 12th Edition of International Seminar on European Project Management at Pixel, Florence (IT) from 28 Sep. - 3 Oct. 2015. |

| | |
|-----------|--|
| 2012 | IEEE International Conference on Systems, Man, and Cybernetics IEEE SMC 2012, COEX, Seoul, Korea, Oct. 14-17, 2012. |
| 2015 | 12th International Conference on Control, Automation and System ICCAS 2012, ICC, Jeju Island, Korea, Oct. 17-21, 2012. |
| 2003-2005 | Development of Mechatronics Courses Undergraduate Project (DMCUP) in Faculty of Engineering, Assiut University. |
| 2003-2005 | Quality Assurance and Accreditation (QAAA) in Faculty of Eng., Assiut University. |

Teaching Experience

2001-

Teaching the following Courses

Now

- Mechanical Engineering “Statics”
- Mechanical Engineering “Dynamics”
- Automatic control (I &II)
- Process Control Simulation
- Fuzzy control
- Modeling and simulation
- Measurement and Instrumentation
- Electro-Hydraulic System
- Analysis, Programming of Numerical Method
- Engineering drawing with CAD
- C++ programming
- Fortran programming
- Mechanical Engineering Laboratories
- Introduction of robotics
- Automation of robotics
- Robot Operation System (**ROS/Moveit**).
- Mechatronics
- Simulation and modeling analysis

Supervising three teams (35 under graduate students) representing Assiut University in *ROBOCON2009* contest. One team won the third position in Egyptian local competition.

Industrial Experience

- LEONI Company
- SEMAF Egypt, 2015
- Training in Egypt Aluminum Company, Egypt, 2000.

References List

Reference (1)

Prof. **Masakatsu G. Fujie**

Waseda University, Tokyo, Japan.

E-mail : mgfujie@waseda.jp

Reference (2)

Prof. **Yo Kobayashi**

Osaka University, Osaka , Japan.

E-mail : yo.kobayashi@me.es.osaka-u.ac.jp

Reference (3)

Prof. Ayman A. Aly El-Naggar

Professor of Mechatronics engineering and the director of E-Learning and distance education unit at college of engineering, Taif University, Saudi Arabia

Email: draymanelnaggar@yahoo.com, aymanaly@tu.edu.sa
draymanelnaggar@gmail.com

Tel.: +201154029529 (Egypt) + 966532809277 (Saudi Arabia)

Reference (4)

Prof. **Ahmed M R Fath El-Bab**

Egypt-Japan University of science and Technology, Egypt.

Email : ahmed.rashad@ejust.edu.eg

Tel.: +201142278744 (Egypt)

Reference (5)

Prof. **Abdelfattah M. Mohamed**

Electrical Department, Faculty of Engineering, Assiut University, Egypt.

E-mail : afm@aun.edu.eg

Tel.: +201064172259 (Egypt)