

CURRICULUM VITAE

Dr. Adel Taha Mohamed Abbas

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Personal Data

Name: Adel Taha Mohamed Abbas

Date of birth: 7th April 1954

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My Employment History

- Professor, Mechanical Engineering Department, Engineering College, King Saud University, (March, 2017-Now) Full time
- Associate Professor, Mechanical Engineering Department, Engineering College, King Saud University, (2009- 2017) Full time
- Associate Professor, Industrial Engineering Department, Faculty of Engineering, Modern Sciences & Arts University, Egypt (2006- 2009) Full time.
- Assistance Professor, Industrial Engineering Department, Faculty of Engineering, Modern Sciences & Arts University, Egypt.(2000- 2006) Full time
- Consultant of Center for Advanced Post Graduate Studies and Research in Engineering Sciences, Faculty of Engineering, Cairo University, (Part-time 1996-2009) Part Time.
- Associate Professor, Production Department, Faculty of Engineering, French University in Egypt (2008- 2009) Part time.
- Associate Professor, Mechanical Department, Faculty of Engineering, Future University in Egypt (2008- 2009) Part time.
- International instructor of CAD/CAM/CAE – UG- NX Software, USA. (2000- 2009)
- Consultant for different factories in Egypt (1992-2009)
- Referee for International Journal of Production Research (2006-Now).
- Referee for International Journal of Advanced Manufacturing Technology (2010-Now)
- Referee for International Journal of Computer Integrated Manufacturing (2008 -Now)

- Referee for International Conference of Mechanical Design & Production, Faculty of Engineering, Cairo University, (1992- Now)
- CAD/ CAM Manager MF100 (1998-2000)
- Manager for CNC Training Center at MF100 (1996-1998)
- Production Manager for Cannons and Gun mounts, MF100 (1992-1996)
- General Manager for Cannons and Gun mounts, MF100, (1988-1992)
- Manufacturing Engineer for CNC Machines, MF100 (1979-1988)

Education

Ph.D. Degree in Mechanical Design and Production, Cairo University 1992

M.S. Degree in Mechanical Design and Production, Cairo University 1985

B.S. Degree in Mechanical Design and Production, Cairo University 1977

Thesis

M.S. Degree thesis:

Assessment of Plastic Deformation and Limit Strains for Sheet Metal in Biaxial Stretching

Ph.D. Degree thesis:

Stress and Strain in Gun Barrel Autofrettage

Certifications

- Instructor Certification in Basic and Advanced Computer Numerical Control CNC Training, Hudson Valley Community College – Division of Engineering and Industrial Technology, USA 1993
- Master User Certificate in NC Programming, CAD/CAM Unigraphics, USA 2005
- Master User Certificate in Drafting CAD/CAM Unigraphics, USA 2000.
- Master User Certificate in Design CAD/CAM Unigraphics, USA 2003.
- Master User Certificate in Engineering CAD/CAM Unigraphics, USA 2001.

Courses Taught at MSA University, Cairo University , Future University and French University and King Saud University (1992-Now)

- Workshop (for Prep. Year)
- Manufacturing Processes II (Metal Cutting)
- Advanced Manufacturing, Computer Numerical Control Machines
(CNC Machines) (Theory, Programming and Applications)
- Computer Aided Manufacturing (CAM)
- Computer Aided Design (CAD)
- Computer Aided Engineering (CAE)
- Computer Integrated Manufacturing
- Jigs & Fixtures Design
- Engineering Materials and Testing
- Graphic I (Engineering Drawings Part I)
- Graphic II (Engineering Drawings Part II)
- Graduation Projects (150 Projects)

Supervision: I was a Supervisor on the Following Thesis:

1-“Influence of Autofrettage on Residual Stress Intensity Factors Internally or externally Cracked Gun Barrels”, Wissam Mustafa AL- Hozwany a Thesis Submitted to the Faculty of Engineering , Cairo University in partial Fulfillment of the Requirements For Degree of Doctor of philosophy in Mechanical Engineering (1999).

2-“Modeling and Simulation of Robot working Space in an Industrial Environment”
Mohamed Fawzy Aly a Thesis submitted to the Faculty of Engineering at Cairo University in partial Fulfillment of the Requirements for Master Degree in Mechanical Engineering, 2001.

Published Papers

- 1- **Adel T. Abbas**, Danil Yu. Pimenov, Ivan N. Erdakov, Mohamed A. Taha, Magdy M. El Rayes, Mahmoud S. Soliman, “Artificial Intelligence Monitoring of Hardening Methods and Cutting Conditions and their Effects on Surface Roughness, Performance, and Finish Turning Costs of Solid-State Recycled Aluminum Alloy 6061 Chips”, *Metals* 2018, 8(6), 394; [doi: 10.3390/met8060394](https://doi.org/10.3390/met8060394)
- 2- **Adel Taha Abbas**, Danil Yurievich Pimenov, Ivan Nikolaevich Erdakov, Mohamed Adel Taha, Mahmoud Sayed Soliman, Magdy Mostafa El Rayes,” ANN Surface Roughness Optimization of AZ61 Magnesium Alloy Finish Turning: Minimum Machining Times at Prime Machining Costs”, *Materials* 2018, 11(5), 808; [doi:10.3390/ma11050808](https://doi.org/10.3390/ma11050808)
- 3- **Adel Taha Abbas**, Adham Ezzat Ragab, Ehab Adel El-Danaf, Essam Ali Al Bahkali, ” Effect of equal-channel angular pressing on the surface roughness of commercial purity aluminum during turning operation, ” *Proceeding of the Institution of Mechanical Engineers Part B: Journal Engineering Manufacture*, May 2018, Volume 232, Number 6, pp. 995-1006 <https://doi.org/10.1177/0954405416662083>
- 4- Nabeel H. Harthi, Sedat Bingol, **Adel T. Abbas**, Adham E. Ragab, Mohamed F. Aly, Hamad F. Alharbi, “Prediction of Cutting Conditions in Turning AZ61 and parameters optimization Using Regression Analysis and Artificial Neural Network “, *Advances in Materials Science and Engineering*, Volume 2018, Article ID 1825291, 10 pages <https://doi.org/10.1155/2018/1825291>
- 5- Adham Ezzat Ragab, Mohamed Adel Taha, **Adel Taha Abbas**, Essam Ali Al Bahkali, Ehab Adel El-Danaf, Mohamed Fawzy Aly, “ Effect of Extrusion Temperature on the Surface Roughness of Solid State Recycled Aluminum Alloy 6061 Chips during Turning Operation“ , *Advances in Mechanical Engineering*, 2017, Vol. 9(10) 1–11 journals.sagepub.com/doi/full/10.1177/1687814017734152
- 6- **A. T. Abbas**, D. Yu. Pimenov, I. N. Erdakov, T. Mikolajczyk, E. A. El Danaf, M. A. Taha, “Minimization of turning time for high-strength steel with a given surface roughness using the Edgeworth–Pareto optimization method “, *The International Journal of Advanced Manufacturing Technology*, (2017), Volume 93, Issue 5-8, pp. 2375-2392, open access, [DOI 10.1007/s00170-017-0678-2](https://doi.org/10.1007/s00170-017-0678-2)
- 7- Nabeel H. Harthi, Sedat Bingol, **Adel T. Abbas**, Adham E. Ragab, Ehab A. El Danaf, Hamad F. Alharbi “Optimizing Cutting Conditions and Prediction of Surface Roughness in Face Milling of AZ61 Using Regression Analysis and Artificial Neural Network“, *Advances in Materials Science and Engineering*, 2017, ID: 7560468. <https://doi.org/10.1155/2017/7560468>

- 8- **Adel Taha Abbas**, Mohanad M. El Ata, Adham E. Ragab, Magdy M. El Rayes, Ehab A. El Danaf, "Prediction Model of Cutting Parameters for Turning High Strength Steel Grade-H: Comparative Study of Regression Model versus ANFIS", Advances in Materials Science and Engineering, 2017, ID: 2759020. <https://doi.org/10.1155/2017/2759020>
- 9- **Adel Taha Abbas**, Mohamed Adel Taha , Adham Ezzat Ragab , Ehab Adel El-Danaf , Mohamed Ibrahim Abd El Aal "Effect of Equal Channel Angular Pressing on the Surface Roughness of Solid State Recycled Aluminum Alloy 6061 chips" Advances in Materials Science and Engineering, 2017,ID:5131403. <https://doi.org/10.1155/2017/5131403>
- 10- **Adel Taha Abbas**, Adham Ezzat Ragab, Ehab Adel El-Danaf, Essam Ali Al Bahkali
" Effect of equal-channel angular pressing on the surface roughness of commercial purity aluminum during turning operation, " Proceeding of the Institution of Mechanical Engineers Part B: Journal Engineering Manufacture, 2016, [DOI: 10.1177/0954405416662083](https://doi.org/10.1177/0954405416662083)
- 11- Essam Ali Al Bahkali, Adham Ezzat Ragab, Ehab Adel El Danaf, **Adel Taha Abbas**
" An investigation of optimum cutting conditions in turning nodular cast iron using carbide inserts with different nose radius " Proceeding of the Institution of Mechanical Engineers Part B: Journal of Engineering Manufacture, 2016, Vol. 230(9) 1584–1591.
[DOI: 10.1177/0954405416662085](https://doi.org/10.1177/0954405416662085).
- 12- **Adel T. Abbas**, Karim T. Hamza, Mohamed F. Aly, Essam A. Al Bahkali," Multi-Objective Optimization of Turning Cutting Parameters for J-Steel Material" Advances in Materials Science and Engineering, 2016, ID: 6429160. <http://dx.doi.org/10.1155/2016/6429160>
- 13- **Adel Taha Abbas**, Adham Ezzat Ragab, Essam Ali Al Bahkali, Ehab Adel El Danaf,
"Optimizing Cutting Conditions for Minimum Surface Roughness in Face Milling of High Strength Steel Using Carbide Inserts", Advances in Materials Science and Engineering, 2016, ID : 7372132. <http://dx.doi.org/10.1155/2016/7372132>
- 14- **Adel T. Abbas**, Karim T. Hamza, Mohamed F. Aly, "Multiobjective Optimization Under Uncertainty in Advanced Abrasive Machining Processes via a Fuzzy-Evolutionary Approach", ASME, Journal of Manufacturing Science and Engineering, Volume 138, Issue 7, pp. 1003-1:1003-9, 2016. [doi: 10.1115/1.4032567](https://doi.org/10.1115/1.4032567)
- 15- E.A. El-Bahkali, **A.T. Abbas**" Failure Analysis of Vise Jaw Holders for Hacksaw Machine" Journal of King Saud University, Engineering Sciences, On line January, 12, 2016, <http://dx.doi.org/10.1016/j.jksues.2015.12.007>
- 16- **Adel T. Abbas** " Influence of Process Parameters on the Surface Roughness during turning operation of High Strength Steel", Journal of Materials Science Research, Volume 5, No.2, PP 94-104, 2016, Published by Canadian Center of Science and Education.
<http://dx.doi.org/10.5539/jmsr.v5n2p94>

- 17- **Adel T. Abbas** ” Comparative assessment of wiper and conventional carbide inserts on surface roughness in the turning of high strength steel”, Journal of Materials Science Research, Volume 5, No.1, PP 32-45, 2016 Published by Canadian Center of Science and Education.
- 18- **Adel T. Abbas** ” Enhancement of the Capabilities of CNC Machines via the Addition of a New Counter boring Cycle with a Milling Cutter”, Mechanical Engineering Research, Volume 5, No.2, PP. 45-58, 2015, Published by Canadian Center of Science and Education.
- 19- **Adel T. Abbas**, Karim T. Hamza, Mohamed F. Aly, ”Multiobjective Optimization Under Uncertainty in Advanced Abrasive Machining Processes via a Fuzzy-Evolutionary Approach”, ASME 2015, International Design Engineering Technical Conferences and Computers & Information in Engineering Conference August 2-5, 2015. Boston, Massachusetts.
- 20- E. M. Sherif, **A. T. Abbas**, H. Halfa , A. M. El-Shamy, ”Corrosion of High Strength Steel in Concentrated Sulfuric Acid Pickling Solutions and Its Inhibition by 3-Amino-5-mercapto-1,2,3-triazole”, International Journal of Electrochemical Science, Volume 10, - 1777-1791-2015
- 21- **A.T. Abbas**, K.T. Hamza, M.F. Aly” CNC Machining Path Planning Optimization For Circular Hole Patterns via a Hybrid Ant Colony Optimization Approach ” Mechanical Engineering Research, September 5, 2014, Volume 4, No 2, PP. 16-29, Published by Canadian Center of Science and Education.
- 22- E.M. Sherif, **A.T. Abbas**, D. Gopi, A. M. El-Shamy ”Corrosion and corrosion inhibition of high strength low alloy steel in 2.0 M sulfuric acid solutions by 3-amino-1,2,3-triazole as a corrosion inhibitor ” Journal of Chemistry, Volume 2014,Article ID 538794, 8 Pages, Hindawi Publishing, 2014.
- 23- M.F. Aly, **A.T. Abbas**” Simulation of Obstacles' effect on Industrial Robots' Working Space using Genetic Algorithm ” Journal of King Saud University, Engineering Sciences, July 2014, No. 2 Volume 26, 2014
- 24- E.A. El-Bahkali, **A.T. Abbas**” Failure Analysis of Vise Jaw Holders” Proceeding of Abaqus Conference, May, 2013.
- 25- **A.T. Abbas**,” Enhanced CNC Machines Capabilities by Adding Circular Patterns Cycle”, International Journal of Precision Engineering and Manufacturing, Vol.13 No.10, pp. 1753-1758, October 2012.
- 26- **A.T. Abbas**,” Reconstruction Skelton for The Lower Human Jaw Using CAD / CAM / CAE”, Journal of King Saud University, Engineering Sciences, Volume 24, No.2, pp. 159-164, July 2012.

- 27- **A.T. Abbas**, M.F. Aly, K.T. Hamza, " Optimum Drilling Path Planning for a Rectangular Matrix of Holes Using Ant Colony Optimization", International Journal of Production Research, Volume 49, Issue 19, October,01, 2011. PP 5877-5891.
- 28- M.F. Aly, **A.T. Abbas**, S.M. Megahed, "Robot Workspace Estimation and Base Placement Optimization Techniques for the Conversion of Conventional Work Cells Into Autonomous Flexible Manufacturing Systems", International Journal of Computer Integrated Manufacturing ,Volume 23, No.12, December 2010, PP 1133-1148
- 29- **A.T. Abbas** and S.M. Megahed, "A General Algorithm For Drilling Holes Lying In A Matrix", Robotics and Computer Integrated Manufacturing. Volume21, No.3, pp. 235-239, 2005.
- 30- **A.T. Abbas** "A General Algorithm for Profiling and Dressing Grinding Wheels When Using a Grinding Spindle on CNC Lathe", , International Journal of Production Research, Volume 42, Number18, 2004
- 31- **A.T. Abbas**, "A General Algorithm For Profiling and Dressing of Complicated Shape Grinding Wheels", Robotics and Computer Integrated Manufacturing. Vol.20,Issue 4, pp 313-327,2004
- 32- **A.T. Abbas**, "Enhanced CNC Lathe Capability by Addition of a Grinding Spindle", International Journal of Production Research, Vol. 41 No. 12, August 15, 2003.
- 33- A.R. Ragab, **A.T. Abbas**, S.A. Khorshied, "Experimental Verification of the Autofrettage Process for Thick-walled Tubes",. Proc. Mech. Engineers. Vol. 215 part C, pp 727-736, 2001
- 34- S.M. Megahed, **A.T. Abbas**, M.F. Ali, "Introducing Industrial Robots To a Pre-Installed Manufacturing System" Proceedings of CSME 2001 Int. Conference, Concordia University, Montreal, Quebec, Canada. Nov. 22-24 2001
- 35- S. Megahed, **A.T. Abbas**, M.F. Ali, "Robot Workspace Estimation in Presence of Obstacles in its Accessible Region", . Proceedings of CSME 2001 Int. Conference, Concordia University, Montreal, Quebec, Canada. Nov. 22-24, 2001
- 36- W.M. Al-Hozwany, **A.T. Abbas**, M.M. Abo-Hamda and M.M. Megahed, "Influence of Autofrettage on Residual Stress Intensity Factors of Cracked Gun Barrels", Proceeding of the Seventh Cairo University International MDP7 Conference, 2000
- 37- A.R. Ragab, **A.T. Abbas**, S.Y. Khorshied, "Measurement of Residual Stresses in Thick-walled Autofrettaged Tube" Mat-tech 97, France, 1997.
- 38- **A.T. Abbas**, "Custom Macro in CNC Part Programs" , 7th, App. Mechanics & Mech. Engineering, Technical Military College, Conference, 9-11 April 1996,Mil.Prod. Vol., pp 150-159

- 39- M Megahed and **A.T. Abbas**, "Influence of Reverse Yielding on Residual Stresses Induced by Autofrettage". Int. J. Mech Science, Vol. 33 No. 2, pp 139-150, 1991
- 40- A.R. Ragab and **A.T. Abbas**, "Assessment of Work Hardening Characteristics and Limit Strains of Anisotropic Aluminum Sheets in Biaxial Stretching". Journal of Eng. Mat. And Tech., July, 1986, Vol. 108 pp 250-259.

ADVANCED TRAINING COURSES

A- Production Of Cannon:

- Production of Cannon 122mm – Russia.
- Production of Cannon 130mm – China.
- Regunning tank T-55 at Royal Ordnance Nottingham- England.
- Production of Tube, Breech Ring, Breech Block and Minor Parts for 120 mm Gun at Watervilet Arsenal – U.S.A.
- Production of High emphasis Parts of 120 mm Gun Mount at Rock- Island Arsenal - U.S.A.
- Production of Cannon 155mm at Patria Vammas - FINLAND

B- CNC Programming:

- 01- CNC Training Course at Electronic Control System Co., Italy.
- 02- CNC Training Course at Orellikon Co., Italy.
- 03- CNC Training Course at Son-Rocco Co., Italy.
- 04- CNC Training Course at Safop Co., Italy.
- 05- CNC Training Course at Siemens Co., Germany.
- 06- CNC Training Course at Huafeng CNC Machinery Co. Ltd., China.

- 07- CNC Training Course at Xinging Highland Eng. Machinery, China.
- 08- CNC Training Course at Nanjing Machine Tool, China.
- 09- CNC Training Course at Gidding& Lewis Co., USA.
- 10- CNC Training Course at CE-Fanuc Center, USA.
- 11- CNC Training Course at Cincinnati Co., USA
- 12- CNC Training Course at Allen Bradley Co., USA
- 13- CNC Training Course at Binns& Berry Co., England
- 14- CNC Training Course at Fagor, England.
- 15- CNC Training Course at Emco, Austria.

C- CAD/CAM – Unigraphics, USA

- 01- Hybrid Modeling Fundamentals
 - 02- Sketcher
 - 03- Practical Application of UG
 - 04- Design Application Using Unigraphics
 - 05- Drafting Fundamentals
 - 06- Sheet Metal Design
 - 07- Freeform Modeling
 - 08- Assembly Implementation
 - 09- Advanced Assembly
 - 10- Mechanism
 - 11- GFEM Plus
 - 12- Lathe Applications
 - 13- Mill (1) Applications

- 14- Mill (2) Applications
- 15- Mill (3) Applications
- 16- Post Building Techniques
- 17- Progressive Die Design
- 18- Essential for NX Designers
- 19- NX Design for the Experienced CAD User with Team Center Integration
- 20- Classic Jack

Industrial Experience

I started my career at Military Factory MF100 since 1979. It has more than 1000 machine tools and 3,000 employees. It is concerned with the production of heavy cannons and gun mounts as well as several families of spare parts for other industries. During the period Jan., 1979 to 2000, I have the following experience:

- Material Testing and Laboratory Equipment
- Shop planning-production
- Design Jigs and Fixtures
- Reverse engineering
- Selection of machines
- Machines Installation
- Machines , Inspection & Calibration
- Purchasing Tooling and Equipment
- Quality control system
- Supervision of production process

- Preparation of part programs for all CNC machines ie: milling, boring, turning, grinding, and machining center
- Preparation of processing sheets
- Training Engineers and Technical staff of CNC processes (more than 1500 persons)
Programming and setting
- Production Manager / Project Manager for more than 10 years for cannons and gun mount (23,105,120,122,130,155mm).
- Technology Transfer with International companies, Royal Ordinance –UK, Rock Island Arsenal -US, Watervliet Arsenal-US, Patria Vammass –Finland