

Subject: **Curriculum Vitae**

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Name: Alireza Hajjali Mohammadi

Email Address: ahajjali@semnan.ac.ir



Education:

Ph.D. Mechanical Engineering, Amirkabir University of Technology, Tehran, Iran, 2013

M.Sc. Mechanical Engineering. Amirkabir University of technology, 2007

B.Sc. Mechanical Engineering, Amirkabir University of technology, 2005

Research Interests:

Advanced manufacturing methods (Ultrasonic, EDM), Design and manufacturing of internal combustion engine systems and components, machine vision, diesel and gaseous sprays modeling and experimental investigation.

Professional Experience

- Assistant Professor, Semnan university, mechanical engineering department, 2015-present
- Research Asistant, Iran Khodro Powertrain Company (IPCO), Laboratory for Fuel and combustion development, 2013-2015.
- Iran Khodro Powertrain Company (IPCO), engine design department (head of fuel injection systems division), 2008-2015.
- Research Asistant, Fuel,Combustion,and Emission-FCE center, Sharif university of technology, 2014-2015.
- Iran Khodro Powertrain Company (IPCO), engine design department (head of Benchmarking department 2014-2015)
- Iran Khodro Powertrain Company (IPCO), EFD Engine design project (High speed 1.5l Turbocharged CR engine), Top End group team leader and Component Engineer of FIS Parts, 2014-2015

- Iran Khodro Powertrain Company (IPCO), IK312 Project (3Cylinder GDI engine), Benchmarking Team Leader, 2014-2015
- Kavosh Mechanize Fanavar, Design of a robot for monitoring of sewer pipes, May-Sep 2006
- CNC and Metrology Lab, Mechanical faculty of Amirkabir University of Tecnology, 2004-2007, operator of CMM machine
- Tina Sanat Mobadel Company, Engine radiator manufacturer, Jun-Sep 2005
- Society of manufacturing engineering of Iran, 2003-2004

Teaching Experiences

- Systems and design of high speed common rail diesel engine, for IranKhodro group (SAPCO, ISACO,...), August 2015
- Advanced internal combustion engines course, (advanced optical methods and design of fuel injection system components, Amirkabir University of technology, 2014-present
- Workshop of Applications of optical diagnostics for flow visualization in IC engines, 8th International Conference on Internal Combustion Engines and Oil, 17-19 February 2014, Tehran, Iran
- Automotive Engineering course teaching (Engine top end parts design course), University of applied science (IranKhodro Branch), Tehran, Iran, 2013-present
- Mechanical engineering courses teaching, Azad University, Saveh branch, 2007-2011

Awards

- Best Bsc thesis of Amirkabir University of technology, 2005
- Winner of the Best paper of 11th international conference of Iranian manufacturing engineering

Professional Memberships

- Iranian Society of engines
- Combustion institute

Short-Term Positions

- Ph.D visiting student, Laboratory for Turbulence Research in Aerospace and Combustion (LTRAC), Dept. Mechanical and Aerospace Engineering, Monash University, Australia, March-September 2012

Publications

Peer Reviewed Journal Papers (12 Refereed Journals):

- Mohebbi M, Aziz A A, Hamidi A, **Hajjalimohammadi A**, Hosseini V, Modeling of pressure line behavior of a common rail diesel engine due to injection and fuel variation, Journal of the Brazilian Society of Mechanical Sciences and engineering, 2016
- **Hajjalimohammadi A**, Fallahi D, Mirsalim M, Numerical investigation of using micro-hole nozzle on characteristics of diesel fuel spray of high speed diesel engine, Fuel and Combustion journal, 2016; 8(2), in Persian.
- Erfan I, Chitsaz I, Ziabasharhagh M, **Hajjalimohammadi A**, Fleck B, Injection characteristics of gaseous jet injected by a single-hole nozzle direct injector, Fuel 2015; 160: 24-34.
- *Mirafzal M. M, **Hajjalimohammadi A**, Mousavi Mashhadi S.M, Mohammadi A*, Design and manufacturing process simulation of sheet metal exhaust manifold for turbocharged bi fuel engine, The Journal of Engine Research, Vol. 34 (winter 2015)
- **Hajjalimohammadi A**, Honnery D, Abdullah A, Mirsalim M. Sensitivity analysis on the parameters affecting image processed results of high pressure gaseous jet images, The Journal of Engine Research, Vol. 33 (winter 2014), pp. 43-52.
- **Hajjalimohammadi A**, Abdullah A, Agha Mirsalim M, Chitsaz I. Experimental and Numerical Investigation on the macroscopic characteristics of the jet discharging from gaseous direct injector. Journal of Mechanical Science and Technology 2014; 28(2): 773-81.
- **Hajjalimohammadi A**, Honnery D, Abdullah A , Agha Mirsalim M. Time resolved characteristics of gaseous jet injected by a group-hole nozzle. Fuel 2013;113: 497–505

- Chitsaz I , Saidi MH, Mozafari AA, **Hajjalimohammadi A**. Experimental and numerical investigation on the jet characteristics of spark ignition direct injection gaseous injector. Applied Energy 2013 ;105: 8–16
- Erfan I, Ziabasharhagh M, **Hajjalimohammadi A**, Chitsaz I. A new technique for determination of geometry characteristics, mass flow rate and discharge coefficient of a direct gas injection nozzle. The Journal of Engine Research. 2013; 29 (29) :57-66 (in Persian)
- **Hajjalimohammadi A**, Ahmadisoleymani S, Abdullah A, Asgari O, Rezai F. Design and Manufacturing of a Constant Volume Test Combustion Chamber for Jet and Flame Visualization of CNG Direct Injection. Applied Mechanics and Materials 2012; 217 – 219: 2539-2545
- **Hajjalimohammadi A**, Honnery D, Abdullah A, Mirsalim M. Experimental investigation of the effect of pressure and density ratios on the gaseous spray of the group-hole nozzle. The Journal of Engine Research. 2012; 28 (28) :11-19 (in Persian)
- **Hajjalimohammadi A**, Abdullah A, Mirsalim SM, Chitsaz I, Khalili M, Soltani M. Experimental investigation of the transient jet emanating from the prototype direct gaseous injector, Journal of Modeling in Engineering 2011, 9(25): 21-31 (in Persian).
- Abdullah A, Fartashvand V , **Hajjalimohammadi A**, Abedini R. Ultrasonic Cleaning Parameters, IJAEA, Volume 1, Issue 4, pp.41-46 (2008)

11 Conference Proceedings

- Mohebbi M, Reyhanian M, Hosseini V, **Hajjalimohammadi A**, Experimental investigation of effect of SOI and Lambda on RCCI engine combustion, 9th International Conference on Internal Combustion Engines and Oil, 16-18 February 2016, Tehran, Iran
- Fallahi D, **Hajjalimohammadi A**, Mirsalim M, Experimental investigation of passenger car diesel (EFD) engine spray, 9th International Conference on Internal Combustion Engines and Oil, 16-18 February 2016, Tehran, Iran (in Persian)

- **Hajjalimohammadi A**, Honnery D, Abdullah A, Mirsalim M. Sensitivity analysis on the parameters affecting image processed results of high pressure gaseous jet images, 8th International Conference on Internal Combustion Engines and Oil, 17-19 February 2014, Tehran, Iran (in Persian)
- Erfan I, Ziabasharhagh M, Chitsaz I, Jazayeri SA, **Hajjalimohammadi A**. An Experimental Investigation of Gaseous Fuel Direct Injection in a Constant Volume Chamber, 8th International Conference on Internal Combustion Engines and Oil, 17-19 February 2014, Tehran, Iran
- **Hajjalimohammadi A** , Chitsaz I, Mirsalim M, Khalili M. Schlieren imaging of the jet of gaseous direct injector, 1th National Conference on Internal Combustion Engines, 15-16 November 2012, Semnan, Iran (in Persian)
- **Hajjalimohammadi A**, Soltani M. Design, manufacturing and testing of a prototype gaseous fueled injector, 1th National Conference on Internal Combustion Engines, 15-16 November 2012, Semnan, Iran (in Persian)
- Mirsalim M, **Hajjalimohammadi A**. Numerical and Experimental Investigation of Influence of Various Parameters on Formation of Direct Injection Gaseous Fuel Jet in a Constant Volume Chamber . 7th International Conference on Internal Combustion Engines, 19-21 November 2011, Tehran, Iran
- Mirsalim SM, **Hajjalimohammadi A**, Ehteram M, Fakhari V. Exergy Analysis of a compressed natural gas turbocharged spark ignited engine. ASME 2010, 10th Biennial Conference on Engineering Systems Design and Analysis, 12-14 July 2010, Istanbul, Turkey
- Abdullah A, Foroughi S, Pak A, **Hajjalimohammadi A**. Finite element optimization of transducers arrangements in ultrasonic cleaning, 11th international conference of Iranian manufacturing engineering, 19-21 October 2009, Tabriz, Iran (in Persian)
- Abdullah A, **Hajjalimohammadi A** , Pak A, Foroughi S. Design and manufacturing of Solid-Matching Piezoelectric Ultrasonic Transducer, 11th international conference of Iranian manufacturing engineering, 19-21 October 2009, Tabriz, Iran (in Persian)
- Abdullah A, **Hajjalimohammadi A**, Pak A. design and manufacturing of ultrasonic cleaning unit for cleaning of engine parts, The 6th International Conference on Internal Combustion Engines, 17-19 November 2009, Tehran, Iran (in Persian)

Under Review and Under Submission papers

- Erfan I, **Hajjalimohammadi A**, Ziabasharhagh M, Chitsaz I, Jazayeri SA, Investigation of Back Pressure and Density Ratio Effects on Jet Characteristics of Multi-Hole Gaseous Fuel Injector, under preparation for sending to fuel journal.
- **Hajjalimohammadi A**, D.A. Mitchel, Honnery D, Abdullah A , Agha Mirsalim M. Ultra High speed investigation of gaseous jet injected by a single-hole injector and proposing of an analytical method for pressure loss prediction during transient injection, under preparation for submission to Fuel Journal

Supervised Academic Projects

■ Graduated Students

- Heydari A, Theoretical and numerical study of wall-impinging jets, M.Sc Thesis, 2016, School of Automotive Engineering, Iran University of Science and Technology, Tehran, Iran, (as an Academic and industry advisor)
- Abiarkashani M, Design and optimization of high pressure injection tubes of high speed diesel engine, M.Sc Thesis, 2015, Mechanical Engineering Department, Tehran University, Tehran, Iran (as an industry advisor)
- Fallahi D, numerical and Experimental investigation on the diesel fuel spray of high speed diesel engine, M.Sc Thesis, 2014, Mechanical Engineering Department, Tehran University, Tehran, Iran (as an industry advisor)
- Mirafzal MM, Design of sheet type exhaust manifold for turbocharged CNG fueled engine, M.Sc Thesis, 2013, Mechanical Engineering Department, Tehran University, Tehran, Iran (as an industry advisor)
- Zarei MH, Design of a test bench for high speed imaging of engine valve spring, B.Sc Thesis, 2013, Mechanical Engineering Department, Amirkabir University of Technology, Tehran, Iran (as an Academic supervisor)
- Ahmadisoleymani S, Design and Manufacturing of a Constant Volume Test Combustion Chamber for Jet and Flame Visualization of CNG Direct Injection, B.Sc Thesis, 2012, Mechanical Engineering Department, Amirkabir University of Technology, Tehran, Iran (as an industry advisor)
- Soltani M, Design, manufacturing and testing of a prototype gaseous fueled injector, B.Sc Thesis, 2011, Mechanical Engineering Department, Amirkabir University of Technology, Tehran, Iran (as an industry advisor)

■ Present Students

- Rahmani S, Spray characteristics of gasoline multi hole injector, M.Sc Thesis, Mechanical Engineering Department, Amirkabir University of Technology, Iran (as an industry advisor)
- Sohrabi I, Experimental investigation of diesel Spray at porous media condition, Ph.D Thesis, Mechanical Engineering Department, Babol University, Mazandaran, Iran (as an industry advisor)
- Mansuri A, Spray characteristics of diesel engine under cold engine working condition , M.Sc Thesis, Mechanical Engineering Department, Amirkabir University of Technology, Iran (as an industry advisor)
- Fatollahi H, Modeling and design of fuel injection system for 3 cylinder GDI engine, B.Sc Thesis, Mechanical Engineering Department, Amirkabir University of Technology, Iran (as an industry advisor)

Training and Special Courses

- Introduction to Aerosols, theory and measurements methods, 2st national conference on Air Quality Control, Tehran, Iran, 2014
- New technologies of injection molding for production of automotive parts, ENGEL Austria GmbH, Tehran, Iran (10 hours Technology Seminar), 2014.
- Faculty of Engineering Demonstrator Teaching Development Program, Monash University, Melbourne, Australia, 2012
- Experimental safety induction, Monash University, Melbourne, Australia, 2012
- Hybrid Vehicles, 7th International Conference on Internal Combustion Engines, Tehran, Iran, 2011
- Principles of science and technology of Nano materials, Azad University, Saveh Branch, Saveh, Iran, 2010
- Principles of CMM machine operating and software training (CAPPS 6), Trimek Metrologia Industrial, Metrology Lab., industrial engineering department, Amirkabir University of technology, Tehran, Iran (64 hours), 2005

Software (Skills in Analytical and Application Programs)

- PTC Creo3
- PDM link
- AMESim (For modeling of fuel injection system)
- MATLAB (Image Processing Module)
- AVL Fire (Spray and engine simulation)
- Fluent
- SolidWorks

- Visual Fortran
- SPSS

Executive experiences

- Project manager, Engine benchmarking of GAMMA Kia engine, IPCO, 2014
- Project manager, Advanced planning phase, CNG DI engine, IPCO 2016
- Technical Forums head, 9th conference on internal combustion engines and oil ICICE9, Tehran, 2016
- Head of technical Festival, 8th conference on internal combustion engines and oil ICICE8, Tehran, 2014

Research Projects:

- Modifying of fuel injection system of 3 cylinder engine for engine friction testing, IPCO, 2016
- Designing of fuel injection system for converting of mechanical fuel injection system of single cylinder diesel engine to common rail system, Sharif university of technology, 2014-2015
- Design and assembling of fuel injection system for imaging of diesel fuel spray, Ipco, 2013-2014
- Design of validation process for multi-hole diesel injector nozzles and spray imaging, Dinamotors Company, 2013
- Design and establishment of Schlieren imaging system for visualization of gaseous jet, IPCO, 2010-2012
- Design and Manufacturing the optical access constant volume combustion chamber for injection and combustion visualization of direct injection of natural gas, IPCO, 2011 -2013.
- Velocity measurement of water in open raceway of microalgae for production of biodiesel with PIV (particle image velocimetry), Iranian Research Organization for Science and Technology (IROST), June-Aug 2011