

Mehrdad Mahoutian

Curriculum Vitae

CONTACT INFORMATION

Department of Civil Engineering and Applied Mechanics
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<https://ca.linkedin.com/in/mahoutian>

EDUCATION

- 2011-2014 **PhD - Civil Engineering, Materials Engineering**
Department of Civil Engineering and Applied Mechanics, McGill University,
Montreal, Canada
GPA: 4.0
PhD thesis subject: Strength gain and carbon uptake in carbonation activated steel
slag binder [Founded by Natural Sciences and Engineering Research Council
(NSERC)]
Supervisor: Yixin Shao
- 2008-2011 **Master of Science - Civil Engineering, Materials Engineering**
Department of Civil and Environmental Engineering, University of Alberta,
Edmonton, Canada
GPA: 4.0
M.Sc. thesis subject: Characteristics of concrete containing fly ash with Hg-
adsorbent [Founded by Natural Sciences and Engineering Research Council
(NSERC)]
Supervisor: Professor Vivek Bindiganavile and Professor Adam Lubell
The study has focused on the effects of unburnt carbon in fly ash on the air-
entraining admixture demand and consequent properties of concrete.
- 2005-2007 **Master of Science - Civil Engineering, Structural Engineering**
Faculty of Civil Engineering, Sharif University of Technology, Tehran, Iran
GPA: 3.9 (17.56/20)
M.Sc. thesis subject: Behavior of channel shear connectors embedded in fiber
reinforced concrete and its use as a seismic dissipation device
Supervisor: Professor Shervin Maleki
The results of the push out test were used for investigating the channel shear
connector embedded in fiber reinforced concrete when it is subjected to a low
fatigue load.
- 2001-2005 **Bachelor of Civil Engineering**
Faculty of Civil Engineering, University of Tehran, Tehran, Iran

GPA: 3.8 (16.67/20)

ACADEMIC EXPERIENCE

Research Assistant

McGill University, Canada, 2011-2013

Carbon sequestration, Cement fiber board, Supplementary cementitious materials

Teacher Assistant

McGill University, Canada, 2011-2013

CIVE 205, CIVE 207, CIVE 512

Research Assistant

University of Alberta, Canada, 2008-2010

Reliability analysis

Research Assistant

University of Alberta, Canada, 2008-2011

High volume fly ash concrete, High performance composites, Image analysis

Teacher Assistant

University of Alberta, Canada, 2008-2010

CIV E391 and ENG G130

Professor/lecturer

Sadra University, Iran, 2008-2008

Instructor of “Concrete Technology” course

Research Assistant

Sharif University of Technology, Iran, 2005-2007

Solid mechanics, Engineering Cementitious Composite (ECC), Experimental modeling and Shear connector in the composite deck of bridges

Research Assistant

Construction Materials Institute, University of Tehran, Iran, 2004-2008

Lightweight aggregate concrete, Self compacted concrete, Fiber reinforced concrete, High-performance fiber reinforced cement composites, Gas permeability of concrete

AWARDS and SCHOLARSHIPS

- ✓ Idea to Innovation Grant (I2I), Natural Sciences and Engineering Research Council of Canada (NSERC), Canada, 2015.
- ✓ FQRNT Postdoctoral Scholarship, The Fonds de recherche du Québec - Nature et technologies, Canada, 2015.
- ✓ NSERC Postgraduate Scholarship, Natural Sciences and Engineering Research Council of Canada (NSERC PGS3), Canada, 2012.
- ✓ McGill Engineering Doctoral Award (MEDA), McGill University, Montreal, Canada, 2011.

- ✓ Graduate Research Enhancement and Travel award (GREAT), McGill University, Montreal, Canada, 2014.
- ✓ McGill International Doctoral Award (MIDA), McGill University, Montreal, Canada, 2011.
- ✓ Inland Cement Graduate Scholarship in Environmental Studies, University of Alberta, Edmonton, Canada, 2010.
- ✓ Myer Horowitz Graduate Students' Association Graduate Scholarship, University of Alberta, Edmonton, Canada, 2010.
- ✓ Provost Doctoral Entrance Award, University of Alberta, Edmonton, Canada, 2009-2010.
- ✓ Dr. Donald R Stanley Graduate Scholarship in Civil and Environmental Engineering, University of Alberta, Edmonton, Canada, 2009.
- ✓ Provost Doctoral Entrance Award, University of Alberta, Edmonton, Canada, 2008-2009.

HONORS and PRIZES

- ✓ Nominated for the Faculty's Outstanding Teaching Assistant Award, McGill University, Montreal, Canada, 2014.
- ✓ Canadian Society for Civil Engineering (CSCE) award winner 1st place in the graduate poster competition, Edmonton, Alberta, Canada, 2009.
- ✓ Masonry Contractors Association of Alberta (MCAA) award winner 2nd place in the paper contest of Masonry Contractors Association of Alberta symposium, Edmonton, Alberta, Canada, 2009.
- ✓ ACI award winner 3rd place in the ACI cube competition, held along with ACI fall 2003 convention, Boston, United States of America, 2003.
- ✓ Ranked 6th in the National Graduate Entrance Exam. I ranked the 6th place among about 25000 civil engineering undergraduate participates in 2005, 2005.
- ✓ Honored by Dean of Faculty of Engineering, Professor M. Nili, for Research on High Performance Concrete, 2003.
- ✓ Honored by the chairman, Professor M. Tadayon, of the board of directors of Iranian Concrete Institute (ICI) for organizing Iranian concrete day conventions, 2006.
- ✓ Honored by the chairman of the first national workshop on self-compacting concrete, professor M. Ghalibafian, held at the University of Tehran, Faculty of Engineering, Iran, 2006.
- ✓ ICI (Iranian Concrete Institute) award winner 4th place in the ICI cube competition, held along with Iranian Concrete Day convention, Tehran, Iran, 2003.
- ✓ "Exceptional talent of student" award from the government of Iran, 2003.
- ✓ Admitted to the Graduate program in civil engineering with waive of the National Entrance examination because of "honorable scientific achievements", 2005.
- ✓ Placed 513th among 400,000 applicants at the undergraduate entrance exam, 2001.
- ✓ Exempt from military service duty in Iran due to "Exceptional Talent Student", 2003.

EMPLOYMENT EXPERIENCE

Research Assistant

Department of Civil Engineering and Applied Mechanics, McGill University, 2011-2014
Research on carbon uptake of the cement fiber board containing steel slags.

Research and Teacher Assistant

Department of Civil Engineering, University of Alberta, 2008-2010
Teacher Assistant in CIV E391 and ENG G130 courses as the lab and marking instructor.
Research on microstructure of supplementary cementitious material using image analysis technique.

Technical Manager

Construction Materials Institute (CMI), University of Tehran, 2006-2008
Director of the concrete laboratory at Construction Materials Institute (CMI). Training test methods to new employees and supervising the technicians.

Concrete Expert

Construction Materials Institute (CMI), University of Tehran, 2003-2006
Testing construction materials (concrete), designing concrete mixtures and casting and analyzing data and preparing final reports.

Technical Consultant

Paya Shive Pars Company Ltd, 2001-2003
Plotting the plans.

Executive manager

Of the first Self Compacting Concrete Workshop in Iran, CMI, University of Tehran, February 2006.

Internship assistant

Iran Khodro Company Ltd, Summer 2005
Organizing the traffic inside the company.

BOOKS and CD-ROMs

- 1- Libre, N, Shekarchi, M., **Mahoutian, M.**, CD Rom V1 & V2, Self Compacting Concrete guidelines (in Persian), CMI publication, Iran, 2007.
- 2- Nokande, M., Soleimani, M., **Mahoutian, M.**, Nuri, A., Translation the book entitles "Fundamental physics" written by Halliday, Rezenick, Walker to Persian, Volume 1, Zakate Elm publication, Iran, 2002.

PUBLICATIONS

Published Journal Papers

- 1- **Mahoutian, M.**, Lubell, A., Bindiganavile, V., “Effect of powdered activated carbon on the air void characteristics of concrete containing fly ash”, *Construction and Building Materials*, Vol. 80, pp. 84-91, 2015. (8 pages and 7 figures)
- 2- Shao, Y, Zhou, A., **Mahoutian, M.**, “Pseudo-dynamic flue gas carbonation for concrete curing and carbon storage”, *International Journal of Materials and Structure Integrity*, Vol. 9, 2015. (20 pages and 14 figures)
- 3- **Mahoutian, M.**, Shekarchi, M., “Effect of inert and pozzolanic materials on flow and mechanical properties of self-compacting concrete”, *Journal of Materials*, Vol. 15, pp. 1-11, 2015. (11 pages and 8 figures)
- 4- **Mahoutian, M.**, Ghouleh, Z., Shao, Y., “Carbon dioxide activated ladle slag binder”, *Construction and Building Materials*, Vol. 66, pp. 214-221, 2014. (8 pages and 10 figures)
- 5- Shariati, A., Shariati, M., Sulonga, N., Suhatri, M., Arabnejad, M., **Mahoutian, M.**, “Experimental assessment of angle shear connectors under monotonic and fully reversed cyclic loading in high strength concrete”, *Construction and Building Materials*, Vol. 52, pp. 276–283, 2014. (8 pages and 8 figures)
- 6- **Mahoutian, M.**, Shekarchi, M., Libre, N.,” Application of steel fiber reinforced lightweight aggregate concrete in underground mining”, *Journal of Mining Science*, Vol. 47, No. 5, pp. 606-617, 2011. (12 pages and 8 figures)
- 7- Libre, N., Shekarchi, M., **Mahoutian, M.**, Soroushian, P., “Mechanical properties of hybrid fiber Reinforced lightweight aggregate concrete made with natural pumice”, *Construction and Building Materials*, Vol. 25, No. 5, pp. 2458-2464, 2011. (7 pages and 4 figures)
- 8- Shariati, M., Sulong, N. H., Arabnejad, M. M., **Mahoutian, M.**, “Shear resistance of channel shear connectors in plain, reinforced and lightweight concrete”, *Scientific Research and Essays*, Vol. 6, No. 4, pp. 977-983, 2011. (7 pages and 8 figures)
- 9- Mohebbi, A., Shekarchi, M., **Mahoutian, M.**, Mohebbi, S., “Modelling the effects of additives on rheological properties of fresh SCC cement paste using artificial neural network”, *Computers and Concrete*, Vol. 8, No. 3, pp. 279-292, 2011. (14 pages and 8 figures)
- 10- Maleki, S, **Mahoutian, M.**, “Experimental and analytical study on channel shear connectors in fiber reinforced concrete”, *Journal of Constructional Steel Research*, Vol. 65, No. 8-9, pp. 1787-1793, 2009. (7 pages and 11 figures)
- 11- **Mahoutian, M.**, Shekarchi, M., Bakhshi, M., “Gas permeability of concrete (in Persian)”, *journal of Iranian concrete institute (JICI)*, NO. 24, 2006, 37-44. (8 pages and 8 figures)
- 12- **Mahoutian, M.**, Moazmi, A., “Usual application of shotcrete in civil construction (in Persian)”, *journal of Iranian concrete institute (JICI)*, NO. 26, 2007, 17-25. (9 pages and 15 figures)
- 13- **Mahoutian, M.**, Shekarchi, M., “Freeze and thawing resistance of ultra high performance concrete (in Persian)”, *journal of Iranian concrete institute (JICI)*, NO. 27, 2007, 12-18. (7 pages and 5 figures)
- 14- **Mahoutian, M.**, Shekarchi, M., Hosseini, M., “The steel slag, an alternative for natural aggregate in the road design (in Persian)”, *journal of Iranian concrete institute (JICI)*, NO. 28, 2008, 33-41. (9 pages and 3 figures)

Refereed Conference Papers

- 1- Shao, Y., **Mahoutian, M.**, Ghouleh, Z., El-Baghdadi, A., “Carbonation-activated steel slag binder for cement replacement and carbon utilization”, 5th International Conference on Accelerated Carbonation for Environmental and Materials Engineering, 2015, New York, USA (8 pages and 5 figures).
- 2- Kazemi, S., **Mahoutian, M.**, Moosavi, H., Korany, Y., “Reliability analysis of masonry members under compression”, *Structures Congress, ASCE*, pp. 605-615, 2011, Las Vegas, USA (11 pages and 2 figures)

- 3- **Mahoutian, M.**, Bindiganavile, V., Lubell, A., “Characteristics of concrete containing fly ash with Hg-adsorbent: preliminary results”, Think globally, build locally congress, fib-PCI, 2010, Washington D.C., USA. (16 pages, 10 figures)
- 4- Farnam, Y., **Mahoutian, M.**, Shekarchi, M., “Experimental and numerical studies of impact behavior of fiber lightweight aggregate concrete”, Structures Congress, ASCE, 2008, Vancouver, Canada. (10 pages and 10 figures)
- 5- **Mahoutian, M.**, Libre, N., A., Moradi, F., Shekarchi, M. “Durability properties of fiber reinforced lightweight aggregate concrete”, Improving Infrastructure Worldwide, IABSE, 2007, Weimar, Germany. (8 pages and 7 figures)
- 6- Bakhshi, M., **Mahoutian, M.**, Shekarchi M., “The gas permeability of concrete and its relationship with strength”, fib - 2nd International Congress, 2006, Naples, Italy. (8 pages and 13 figures)
- 7- Maleki, S., **Mahoutian, M.**, “Push-out tests on polypropylene concrete”, Eleventh East Asia-Pacific Conference on Structural Engineering and Construction, EACSE 11, 2008, Taipei, Taiwan. (6 pages and 4 figures)
- 8- **Mahoutian, M.**, Bakhshi, M., Shekarchi M., “Effect of high reactivity metakaolin on gas permeability of high performance concrete”, Ninth CANMET/ACI International Conference on Fly Ash, Silica Fume, Slag And Natural Pozzolans in Concrete, 2007, Warsaw, Poland. (16 pages and 14 figures)
- 9- Layysi, H., **Mahoutian, M.**, Shekarchi, M.,” Durability properties of polypropylene reinforced concrete” 11DBMC International Conference on Durability of Building Materials and Components, 2008, Istanbul, Turkey. (12 pages and 8 figures)
- 10- **Mahoutian, M.**, Bakhshi, M., Shekarchi M., “Effect of air-entraining admixtures on gas permeability of concrete”, Ninth CANMET/ACI International Conference on Recent Advances in Concrete Technology, 2007, Warsaw, Poland. (12 pages and 11 figures)
- 11- Yadegaran, I., **Mahoutian, M.**, Shekarchi, M., “Analysis of a self-compacting concrete structure with considering the shrinkage effect”, The third international conference on structural engineering, mechanics and computation, 2007, Cape Town, sought Africa. (13 pages and 7 figures)
- 12- **Mahoutian, M.** Yadegaran, I, Lotfi, R., Shekarchi. M., “Nonlinear analysis of a fiber reinforced self-compacting concrete structure”, The third international conference on structural engineering, mechanics and computation, 2007, Cape Town, sought Africa. (9 pages and 11 figures)
- 13- Emdadi, A. Libre, N, Mohebbi, A.R., Yekta. S., **Mahoutian, M.**, “Self compacting concrete incorporating high volume of raw materials”, The third international conference on structural engineering, mechanics and computation, 2007, cape town, sought Africa. (13 pages and 9 figures)
- 14- **Mahoutian, M.**, Yadegaran. I, Libre, N., A., Shekarchi, M., “Comparison between different methods used for evaluation of self compacting concrete’s stability”, 5th Int. RILEM Symp. on SCC, 2007, pp. 103-109, Ghent, Belgium. (11 pages and 10 figures)
- 15- Yadegaran, I., **Mahoutian, M.**, Shekarchi, M., Libre, N., A., “Effect of poly propylene fibers on shrinkage of self compacting concrete”, 5th Int. RILEM Symp. on SCC, 2007, pp. 707-713, Ghent, Belgium. (7 pages and 6 figures)
- 16- **Mahoutian, M.**, Libre, N., Emdadi, A., Shekarchi, M., “Effects of fibers on the physical properties of lightweight aggregate concrete”, 7th international congress on Construction's Sustainable Option, 2008, Dundee, Scotland. (10 pages and 5 figures)
- 17- Libre, N., **Mahoutian, M.**, Yekta, S., “Investigation on steel and polypropylene fibers on fracture energy of lightweight concrete made with pumice (in Persian)”, First National Light Weight Concrete Conference, 2012, Tehran, Iran (7 pages and 4 figures)
- 18- **Mahoutian, M.**, Yekta, S., “Effect of steel and polypropylene fibers on the mechanical properties of light weight concrete made of Leca and pumice (in Persian)”, First National Light Weight Concrete Conference, 2012, Tehran, Iran (6 pages and 3 figures)

- 19- Mohebi, A., Mohamadi, P., **Mahoutian, M.**, “Rheological behaviour of concrete paste against the change of mineral additives (in Persian)”, 8th international civil engineering conference, 2009, Shiraz, Iran. (13 pages and 9 figures)
- 20- Shekarchi, M., Bakhshi, M., **Mahoutian, M.**, “Investigation of gas permeability coefficient of concrete (in Persian)”, Second conference of concrete and development, 2005, Tehran, Iran. (9 pages and 7 figures)
- 21- Shekarchi, M. **Mahoutian, M.**,” Investigation of impact strength of lightweight aggregate concrete (in Persian)”, 3rd national conference of civil engineering, 2007, Tabriz, Iran. (14 pages and 10 figures)
- 22- Shekarchi, M. **Mahoutian, M.**, Libre, N., Yekta, S.,” Comparative between the effect of Pumice and Leca on the mechanical properties of fiber reinforced lightweight aggregate concrete (in Persian)”, 3rd conference of civil engineering, 2007, Tabriz, Iran. (8 pages and 6 figures)
- 23- Shekarchi, M. **Mahoutian, M.**, Libre, N., ”Calculation of fracture energy of light weight aggregate concrete with notched cylindrical beam (in Persian)”, 3rd conference of civil engineering, 2007, Tabriz, Iran. (11 pages and 9 figures)

Reports

- 1- **Mahoutian, M.**, “State of the art on Portland cement lime”, 42 pages, University of Alberta, Canada, 2011.
- 2- **Mahoutian, M.**, “Durability of FRP”, 83 pages (PowerPoint), McGill University, Canada, 2011.
- 3- Shekarchi, M, Libre, N, **Mahoutian, M.**, Ashuri, E., “General guidelines for using structural lightweight aggregate concrete (in Persian)”, 152 pages, CMI Publication, No. 8707294, Iran, 2008.
- 4- Shekarchi, M, Libre, N, **Mahoutian, M.**, “Introduction of structural lightweight aggregate concrete (in Persian)”, 67 pages, CMI publication, No. 8606234, Iran, 2007.
- 5- **Mahoutian, M.**, Rahmani, T., “State of the art on shotcrete (in Persian)”, 76 pages, CMI, Iran, 2007.
- 6- Shekarchi, M, Libre, N, **Mahoutian, M.**, “Application of lightweight aggregate concrete members in the coal mining (in Persian)”, 83 pages, CMI publication, No. 43-1-19097, Iran, 2006.
- 7- **Mahoutian, M.**, Bakhshi, M., Shekarchi, M., “Gas permeability (criteria of durability) of concrete’s pamphlet (in Persian)”, 85 pages, CMI, Iran, 2006.
- 8- Shekarchi, M, Libre, N, **Mahoutian, M.**, “Shrinkage of concrete in the Melat’s Complex Project (in Persian)”, 39 pages, CMI Publication, No. 43-1-19324, Iran, 2005.

Thesis

- 1- **Mahoutian, M.**, Strength gain and carbon dioxide uptake in carbonation activated steel slag binders, 198 p. McGill University, 2014, McGill University, Canada.
- 2- **Mahoutian, M.**, Characteristics of concrete containing fly ash with Hg-adsorbent, Master of Science thesis, 204 p., University of Alberta, 2011, Edmonton, Canada.
- 3- **Mahoutian, M.**, “Behavior of channel shear connectors embedded in fiber reinforced concrete and its use as a seismic dissipation device (in Persian)”, Master of Science thesis, 276 p., Sharif University of Technology, 2007, Tehran, Iran.

CERTIFICATE

Workplace Hazardous Materials Information System (W.H.M.I.S.), McGill University, Environmental Health and Safety, May 2012, Canada.

Basic Business Skills (B.B.S.), McGill University, SkillSets, April 2014, Canada.

Non-refereed Publications

- 1- Shekarchi, M., Libre, N., **Mahoutian, M.**, Mehdipur, I., Vahdani, M., “Investigation of effect of aggregate’s grading on the fresh and hardened properties of self compacted concrete (in Persian)”, The first workshop of self compacting concrete, 2007, Tehran, Iran.
- 2- Yadegaran, I, **Mahoutian, M.**, “Economic investigation of self compacted concrete (in Persian)”, The first workshop of self compacting concrete, 2007, Tehran, Iran.
- 3- Shekarchi, M., Libre, N., **Mahoutian, M.**, Mohebbi, A.R., Yekta, S., “Experiments of self compacted concrete and interpret of their results for evaluating the stability (in Persian)”, The first workshop of self compacting concrete, 2007, Tehran, Iran.
- 4- Raeismohamadiyan, M. **Mahoutian, M.**, “Production of prefabricate self compacted concrete elements for passing the TBM of Shiraz subway (in Persian)” The first workshop of self compacting concrete, 2007, Tehran, Iran.

SCIENTIFIC PAPERS REVIEW

- High Strength KOBM Steel Slag Binder Activated by Carbonation, CONBUILDMAT-D-15-00052, Construction and Building Materials, 2015.
- The research on process and application of self-compacting concrete, Ms_ACRI_19567, Archives of Current Research International, 2015.
- Accelerated carbonation of basic oxygen furnace slag and the effects on its mechanical properties, CONBUILDMAT-D-14-02423, Construction and Building Materials, 2014.
- Performance-based optimum design of reinforced concrete moment frames under earthquake loading, Journal of Seismology and Earthquake Engineering, 2014.
- Behaviour of colour adsorbed fly ash RCC beams with fibres, COMA-D-14-00054, Construction Materials Journal, 2014.
- Study of aggregates grading and fillers role in changing rheological properties of self compacting concrete, SRE-17.05.13-5528, Scientific Research and Essays, 2013.
- The effect of curing regime on pervious concrete abrasion resistance, Construction and Building Material.
- Size dependence of trends in fracture strength of concrete, Materials Science and Engineering.
- Macro modelling of perforated urm walls which are enhanced with one side concrete overlay (8th International Masonry Conference 2010 in Dresden)
- The ‘Code For Sustainable Homes’: Maximizing the ratings with AAC masonry (8th International Masonry Conference 2010 in Dresden)

LEADERSHIP

- Elected as the web administrative, Civil Engineering Graduate Student Society (CEGSS) at the McGill University, Montreal, Canada, 2013-2014.

- Breakout session leader, Research Poster Design Workshop, Summer Undergraduate Research in Engineering (SURE), Montreal, Canada, 2014.
- Selected as the Examiner Committee, 20th and 21th CEGSS Conference, Canada, 2013 and 2014.
- Leader of a fundraising event organized for the victims of the Azarbaijan earthquake (8000 CAD\$ was collected), Montreal, Canada, 2012.
- Mentoring a MSc. student, Materials Laboratory, McGill University, Canada, 2012.
- Elected as the Canadian Society of Civil Engineering (CSCE) representative, Civil Engineering Graduate Student Society (CEGSS), McGill University, Montreal, Canada, 2012-2014.
- Mentoring two summer students, Concrete laboratory, University of Alberta, Canada, 2008-2010.
- Directing and supervising of a team of 3 undergraduate students established for the American Concrete Institute Concrete Competition, Iran, 2008.
- Organizer of 3 field-trips for the civil engineering undergraduate students, Iran, 2003-2005.
- Leader of the Concrete Cube Team. Leading a team of 4 undergraduate students resulted in 3rd place in the ACI cube competition/Boston, 2003.

PATENTS/INTELLECTUAL PROPERTY

- 1- Production of carbonated-bonded construction blocks from steel making residues. Inventors: Yixin Shao, Mehrdad Mahoutian, Zaid Ghoulleh, 2015, patent pending, PCT/CA2015/000176.

INDUSTRIAL PROJECTS

- Investigated cementitious grouts from the view point of shrinkage and initial expansion, used in A.S.P. 54 story residential building, Tehran, Iran, 2007.
- Investigated durability of concrete structures in Qeshm Island, Persian Gulf, Iran (Qeshm Free zone Organization Center structure and Boostan residential complex) from the view point of Chloride and Carbonation corrosion, Gheshm, Iran, 2007.
- Service life assessment of concrete structure (chloride induced corrosion), Airport Control tower, Iran, 2007.
- Investigated utilization of lightweight aggregate concrete elements in the mine instead of wooden elements, Tehran, Iran, 2006.
- Investigated the durability of shotcrete for 3D panel elements exposed to the severe environmental condition, Gheshm, Iran, 2006.
- Investigated the production of high strength lightweight aggregate concrete using Leca and Pumice, Tehran, Iran, 2006.
- Designed a mixture proportion of self compacted concrete for the pier of a 2-span bridge, Karaj, Iran, 2006.
- Designed a mixture proportion of self compacted concrete for a complex commercial building, Tehran, Iran, 2005.

- Investigated aggregates from the view point of Alkali Silicate Reaction (ASR), Construction project of Gilan Cement Factory, Iran, 2005.
- Evaluated the effect of air entrainment and coating on freeze/thaw resistance of concrete, Kalantri Bridge, Orumiye, Iran, 2006.
- Designed the mixture proportion of self compacted concrete for the foundation of a residential building, Pardis Building, Pardis, Iran, 2005.
- Involved in two dam projects. After the calculation of the gas permeability coefficient of Jegin and Seimare dams, the durability of the concrete was evaluated, Ilam, Iran, 2005.
- Designed the mixture proportion for the Kontrol Mechanic Company. The designed high performance concrete was used for production of the structural subway elements, Tehran, Iran, 2005.
- Providing a Concrete Mix Design with Limited Shrinkage for “Mellat Park Complex”, Tehran, 2005.

PRESENTATIONS

- 1- Carbonation-activated steel slag binder for cement replacement and carbon utilization, 5th International Conference on Accelerated Carbonation for Environmental and Materials Engineering, 2015, New York, USA
- 2- Activation of low-energy cement made solely from waste materials with carbonation, ACI Spring Convention, Reno, USA, 2014.
- 3- Microstructure and mechanical properties of cement-based foam using X-ray tomography, Structural seminar, Civil and Environmental Department, University of Alberta, Canada, 2010.
- 4- Characteristics of concrete containing fly ash with Hg-adsorbent: preliminary results”, think globally, build locally congress, fib-PCA, Washington D.C., USA, 2010.
- 5- Characteristic of concrete containing high carbon fly ash, Structural seminar, Civil and Environmental Department, University of Alberta, Canada, 2010.
- 6- Air void network of concrete containing high carbon content fly ash, Civil and Environmental Engineering Graduate Students’ Association (CEEGSA) annually graduate poster event, University of Alberta, Canada, 2010.
- 7- Durability of fiber reinforced lightweight aggregate concrete, presentation in the annual CSCE graduate poster competition, Edmonton, Alberta, Canada, 2009.
- 8- Gas permeability of concrete as durability criteria, Iranian Concrete Institute monthly speech, Plan and Budget Organization, Tehran, Iran, 2006.
- 9- Methods of mixture design of self compacted concrete, the first conference on the new advance concrete technology, University of Buali, Hamadan, Iran, 2007.
- 10- Impact strength of fiber reinforced lightweight aggregate concrete of, 3rd national conference of civil engineering, University of Tabriz, Tabriz, Iran, 2007.
- 11- Self compacted concrete’s tests, 5th symposium of Concrete Day Conventions, University of Tehran, Tehran, Iran, 2007.
- 12- Executive points of lightweight aggregate concrete, 1th symposium of high building technology, Tehran, Iran, 2008.

PROFESSIONAL MEMBERSHIPS

CSCE, Canadian Society for Civil Engineering, 2008-2014

IABSE, International Association for Bridge and Structure Engineering, 2007-2008

ACI, American Concrete Institute, 2003-2013

Canadian Institute of Steel Construction, 2015-2017

ICI, Iranian Concrete Institute, 2003-2007

Alumni Association of Faculty of Engineering, University of Tehran, 2005-2007

Lightweight Concrete Professional Committee, Iranian Concrete Institute, 2006-2007

Student member of ACI-213 committee, structural lightweight aggregate concrete, 2008

Reliability Analysis Group, University of Alberta, 2009-2010

PROGRAMMING SOFTWARE

ABAQUS ANSYS LS-DYNA IMAGE-J CTA_n SAP2000 ETABSE
SAFE MATLAB AUTOCAD EVA-TOPAS-INCA

RESEARCH INTERESTS

- Durability of concrete
- Cement chemistry
- Microstructure analysis of concrete
- Supplementary Cementitious materials
- High performance concrete
- Sustainable cement materials
- Hazardous waste reduction (e.g. Slag)
- Environmentally friendly building materials
- Mechanical properties of concrete
- Sustainability
- Special types of concrete (self compacting concrete, lightweight aggregate concrete, shotcrete, fiber reinforced concrete)
- Image analysis
- Finite element modeling
- Testing materials and analysis (X-ray diffraction, SEM, thermogravimetry, NMR, reliability analysis, Rheology of self compacted concrete, freeze and thaw, foam index test, gas permeability, alkali-silica reaction, fracture energy, air-void system analysis)
- Composite system (fatigue resistance, push out test)

NON ACADEMIC ACTIVITIES

- 1- Keynote speaker, Opportunities made for the graduate students, Gratitude Studies Workshop, McGill University, Canada, 2014.
- 2- Volunteer for the first McGill Engineering Research Showcase (MERS), Montreal, Canada, October 2013.
- 3- Volunteer for the First-Year Student Office at the McGill University, Orientation Center and Student Life Ambassador Program, Montreal, Canada, 2011-2012.
- 4- Volunteer for the “Drug and Alcohol, Peer Health Education Team”, Montreal, Canada, 2012-2013.
- 5- Involved as a volunteer in a fund raising program, “Helping 3 kids in India to have a nutritious meal plan”, Montreal, Canada, 2011.
- 6- Volunteer for an investigation entitled “Study of publishing experiences of doctoral students” performed by a research group at the Education Department in the McGill University, Canada, 2011.
- 7- Make a donation to a new-established library in Iran to purchase 400 copies of new books, 2011.
- 8- Volunteer in The Mustard Seed program, Edmonton, Canada, 2009-2010.
- 9- Volunteer for SAFEWALK group in the University of Alberta since 2009. Safewalk provides a safe alternative to walk alone at night around the University of Alberta campus community and beyond, Canada.
- 10- Make a donation to the MAHAK Charity (a charity institute to support children with cancer), Tehran, Iran, 2012.
- 11- Active member of Chess Club in the University of Alberta since 2009, Canada.
- 12- Mentor for newcomer students who choose University of Alberta as their new university. I adopt 2 new comer students to familiarize them to Edmonton and the University, Canada, 2010.
- 13- Volunteer as a member of the International Student Buddy Program, McGill University, Canada, 2012-2013.
- 14- Tour leader to introduce the equipment and facilities of the concrete laboratory in the University of Tehran for the new undergraduate students, 2007-2008, Iran.
- 15- Cooperating with Radio N53 broadcasting in Edmonton as a “mixer and music selector”.

SPORT ACHIEVEMENTS

- 1- 3rd place in the University of Alberta Table Tennis Tournament, 2010, Canada.
- 2- 3rd place in National Adolescent Chess Competition, 1995, Iran.

REFEREES

Dr. Vivek Bindiganavile

Assistant Professor

Structural Engineering

University of Alberta

3-020 Markin/CNRL Natural Resources

Engineering Facility

Edmonton, Alberta, Canada T6G 2W2

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Fax: (780) 492-0249
E-mail: vivek@ualberta.ca

Dr. Yixin Shao

Associate Professor
Structural/Material Engineering
McGill University

817 Sherbrook West, Montreal, Quebec H3A 0C3
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