

## Abdolhossein Naghizadeh

Ph.D., M.Sc, B.Sc, PrEng (IRCEO) *Civil Engineering*  
Lecturer University of the Free State

### Education

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- 2015 - 2019      Ph.D. in Civil Engineering, *University of Johannesburg*  
Thesis title: "Mix design and behaviour of fly ash geopolymer binders under exposure to alkaline environment" (Supervisor: Prof. S.O. Ekolu)
- 2011 - 2013      M.Sc. in Civil Engineering – Structures, *Azad University, Iran*  
Thesis title: "Effects of crushed aggregate percentage on mechanical and physical properties of concrete" (Supervisors: Prof. Y. Farzan, Prof. B. Farahmand Azar)
- 1999 - 2004      B.Sc. in Civil Engineering, *Azad University, Iran*

### Academic Work Experience

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- 11/2020 – Present      Lecturer at the University of the Free State  
Teaching structural engineering subjects.  
Supervising postgraduate students.  
Conducting research projects mainly on construction materials.  
Collaborating with editorial boards of International Journals and conferences.  
Collaborating with other universities as a research associate and external examiner for postgraduate thesis.
- 02/2020 – 11/2020      Postdoctoral Fellow at the University of Johannesburg  
Conducting a research project on 3D printing of concrete.  
Teaching civil engineering subjects.  
Supervising masters thesis.
- 08/2015 – 02/2020      Contract Lecturer at the University of Johannesburg  
Teaching civil engineering subjects in both course-based postgraduate and undergraduate levels.  
Supervising masters thesis.  
Conducting research projects mainly on construction materials.  
Collaborating with editorial boards of International Journals and conferences.
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## Industrial Work Experience

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2007 - 2013	Professionally Registered Civil Engineer, Ilrah Azerbaijan (Pty.) Ltd., Iran Executive positions in national construction projects including: Shahid Madani Airport's Runway Construction, Tabriz, Iran Ghordian Gravity Dam and Channel Construction, Hadishahr, Iran Milad Residential Town Land Preparation, Marand, Iran Gholfaraj Gravity Dam Construction, Jolfa, Iran
2004 - 2007	Civil Engineer, Garagum (Pty.) Ltd., Iran Working as a site engineer in residential building constructions Quality control manager in concrete ready-mix and aggregate production lines

## Teaching Subjects

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Postgraduate	Dynamics of Structures Theory of Elastic Plates and Shells
Undergraduate	Concrete Technology Reinforced Concrete Design Analysis of Structures Statics Strength of Materials

## Fields of Interest

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Materials	Alternative Cements and Concretes Durability of Concrete Geopolymer Binders Microstructural Analysis Analytical Studies and Characterization of Materials
Structures	Nonlinear Analysis of Structures Seismic Analysis and Design of Structures Pushover Analysis Performance-based Improvement of Existing Buildings 3D Printing of Concrete Structures

## Skills and Abilities

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Languages	Azerbaijani – Native English – Good Turkish – Good Farsi – Good
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Analytical Studies	I have the required skills to operate the equipment and software's used for analytical studies including: Electron Microscopy (SEM), X-ray Diffraction (XRD), X-ray Fluorescence (XRF), Fourier-transform infrared spectroscopy (FTIR)
Computer and Software	SAP 2000, ETABS, PROKON, SAFE, HIGH-SCORE, ESSENTIAL FTIR.

## Short Courses

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2012	Advanced concrete technology Institute of Pajuheshgaran Fan Gostar
2008	Health and Safety course Iranian Organization for Engineering Order of Building
2006	Advances in soil stability Iranian Organization for Engineering Order of Building
2005	Construction materials quality control Institute of Standards & Industrial Research of Iran

## Active Research Projects

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- Mix Design Method for Fly Ash Geopolymer Concretes
- Formulation of ne-part green Concrete
- Self-cured fly ash – based geopolymer concrete
- 3D Printing of Buildings
- Exploring South African natural pozzolans as cement extenders

## Completed Research Projects

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- Durability of fly ash geopolymer binder under extreme environmental conditions
  - Effect of aggregate shape and texture on the properties of concrete
  - Production of brick based on 100% waste material
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## Membership

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- Iran Construction Engineering Organization (IRCEO) - Professional Engineer (Membership No. 133007521)
- Engineering Council of South Africa (ECSA) – Candidate Engineer
- Cement and Concrete institute of South Africa (CCSA) – Academic Member
- Institute of Standards & Industrial Research of Iran, Tabriz, Iran  
Registered Professional Inspector
- South African Institute of Agricultural Engineers (SAIAE) - Member

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## Scholarships and Awards

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2015	NRF Freestanding, Innovation and Scarce Skills Masters and Doctoral Scholarships
2016	Global Excellence and Stature (GES) Scholarship
2019	Centre of Applied Research and Innovation in the Built Environment (CARINBE) Scholarship

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## Additional Academic Activities

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Review	I collaborate as a reviewer with international journals including: Journal of Silicon – Nature Springer Journal of Construction and Building Materials – Elsevier Journal of Case Studies in Construction Materials – Elsevier Journal of Building Engineering – Elsevier
External Examination (Masters Thesis)	I serve as an external examiner for assessment of postgraduate thesis in other universities. Recently evaluated masters thesis:  Name: André Ferreira Title: Analysis of concrete silos for retrofit University: University of Johannesburg  Name: Oyewole Abe Title: Evaluation of models for creep and shrinkage predictions in real life concrete structures

University: University of Johannesburg

Name: Gerald Musa Nkosi

Title: A reliability based comparison of Eurocode 3 and SANS 10162-1

University: University of Johannesburg

## Publications

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- 2021 N. Kawalu, A. Naghizadeh, J. Mahachi, (2021) A review of material specifications for 3d printing technologies and alkali activated materials contribution, The Young Concrete Researchers, Engineers and Technologist Symposium, 13 - 14 July, Johannesburg, 151 - 159. Available on <https://www.cemcon-sa.org.za/ycrets/proceedings/>
- 2020 A. Naghizadeh, S.O. Ekolu and I. Musonda (2020), High temperature heat - treatment (HTHT) for partial mitigation of alkali attack in hardened fly ash geopolymer binders, Case Studies in Construction Materials <https://doi.org/10.1016/j.cscm.2020.e00341>.
- A. Naghizadeh and S.O. Ekolu (2020), Effects of compositional and physico - chemical mix design parameters on properties of fly ash geopolymer mortars, Journal of Silicon, <https://doi.org/10.1007/s12633-020-00799-2>
- 2019 A. Naghizadeh and S.O. Ekolu, (2019) Behaviour of fly ash geopolymer binders under exposure to alkaline media, *Asian Journal of Civil Engineering*, 20(6), 785-798. ISSN 1563-0854, Web address: <http://doi.org/10.1007/s42107-019-00144-y>
- A. Naghizadeh and S.O. Ekolu (2019), A comprehensive mix design method of fly ash geopolymer mortars, *Construction and Building Materials*, 202, 704-717. ISSN: ISSN: 0950-0618, Web address: <https://doi.org/10.1016/j.conbuildmat.2018.12.185>
- A. Naghizadeh (2019) Mix design and behaviour of fly ash geopolymer binders under exposure to alkaline environment, (PhD Thesis) University of Johannesburg <http://hdl.handle.net/10210/430766>.
- 2018 A. Naghizadeh and S.O. Ekolu (2018), Effect of mix parameters on strength of geopolymer mortars - experimental study, *6<sup>th</sup> International Conference on the Durability of Concrete Structures*, 18 - 20 July, Leeds, United Kingdom, 315 - 319.

- 2017 A. Naghizadeh and S.O. Ekolu (2017), Pozzolanic materials and waste products for formulation of geopolymer cements in developing countries: a review, *Concrete Beton*, 151, 22 - 31. ISSN: 1682-6116, Web address: <https://concretesociety.co.za/>
- A. Naghizadeh and S.O. Ekolu (2017), Investigation of mixture factors influencing alkali - silica reaction in fly ash - based geopolymer mortars, in: *71st RILEM Annu. Week ICACMS 2017*, 3 - 8 September, Chennai, India, 95 - 400.
- 2013 A. Naghizadeh (2013) Effects of crushed aggregate percentage on mechanical and physical properties of concrete, (Masters Thesis) Azad University, Iran.
- Under Review  
Papers F. Aneke, A. Naghizadeh (2021) Physicomechanical Properties of Waste and Foundry Sand Based Masonry Bricks, *Journal of Sustainable Cement-Based Materials*.
- A. Naghizadeh, N. Kawalu, J. Mahachi, Effect of Glass-waste Aggregate on Properties of Fly Ash Geopolymer Mortar 5th International Conference on Building Materials and Materials Engineering 2021.
- N. Kawalu, A. Naghizadeh, J. Mahachi, Effect of Glass-waste Aggregate on Properties of Fly Ash Geopolymer Mortar 5th International Conference on Building Materials and Materials Engineering.

## Current Postgraduate Supervision

Student Name: Ms. Ndapandula Kawalu

Title: *Application of fly ash geopolymer mix design for 3D printing of buildings*  
(From University of Johannesburg)

Student Name: Ms. Fhatuwani Muvhango

Title: *Exploring South African Natural Zeolite and Metakaolin as Cement Extenders*.  
(From University of Johannesburg)

Student Name: Mr. Kwandiwe Magugu

Title: *Effect of Curing Temperatures and Mixture Parameters on Mechanical Properties of Fly Ash and GGBS Geopolymers*.  
From University of Johannesburg)

Student Name: Mr. Mashilo Maeteletsa

Title: *Utilizing Glass-waste to Produce Alkali Activator for Fly Ash Geopolymer*.  
(From University of Johannesburg)

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Student Name: Mr. Ntshembo Vernon Ndohozi

Title: *The Effect of Dynamic Loading on Mining Structures Using Finite Element Analysis: A Case Study Analysis of the Kangala Coal Mine in Delmas, Mpumalanga, South Africa.*

(From University of Johannesburg)

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## References

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- Professor Stephen Ekolu      University of Johannesburg  
E-mail: [sekolu@uj.ac.za](mailto:sekolu@uj.ac.za)  
Tel: +27 11 5594405  
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- Professor Felix Okonta      Former Head of Department: Civil Engineering Science  
University of Johannesburg  
E-mail: [fnokonta@uj.ac.za](mailto:fnokonta@uj.ac.za)  
Tel: +27 11 559 2342 /2110
- Professor Jeffery Mahachi      Head of School: Civil Engineering and Built Environment  
E-mail: [jmahachi@uj.ac.za](mailto:jmahachi@uj.ac.za)  
Cell: +27 82 904 9569
- Mr. Louis Lagrange      Head of Department: Engineering Sciences  
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