Curriculum Vitae (CV) of

REZA
RANGSAZ OSGOUI
(PhD. Mining Engineering, Rock Mechanic Division)

Curriculum Vitae

1.Personal information

Surname(s) / First name(s)	**Rangsaz Osgoui, Reza**
Residential address(es)	✉ Via C.L.N 42B, 10095, Grugliasco TO, ITALY
Telephone(s)	☎ +39 329 0661897
E-mail(s)	osgoui@gmail.com

Nationality(-ies)	Iranian-Italian Under process
Work Permission	Official work permission granted in ITALY
Resident	Turin-Italy Since 2005
Date of birth- Place	1975- Tehran
Gender, Marital status	Male, Single

2. Main skill tags

- *Specialized in fundamental and applied geomechanics in Mining, civil, particularly underground spaces.*
- *Over 20 years' experience in the field of geotechnical and geomechanics engineering,*
- *Senior Engineer in the fields of tunnelling in soft ground to rock, and underground excavations*
- *TBM tunnels, segmental lining, risk-based driven method.*
- *Author of 20 technical papers, one book, and many engineering design reports.*
- *Peer reviewer of Tunnelling and underground space technology journal (TUST) since 2010.*
- *External invited lecturer of SFRC segmental lining for the MSc program of mechanized tunnelling at Politecnico di Torino*

3. Professional Experiences

Dr.Reza Osgoui is currently a Senior Engineer with a strong academic background narrowed in Rock Mechanics as his PhD research period, but he has gained extensive international experiences in his career in GEODATA, particularly in design and planning of tunnels and other underground spaces.

He has been involved for both conventional (NATM) and mechanized (TBM) methods in long & deep tunnels in rock and urban tunnelling in soil contexts, from conceptual design stage to constructive phase, with particular references in:

- *Precast segmental tunnel lining for mechanized excavation by TBM (conventional and steel fibre reinforcement (SFRC) applications);*
- *Rock Mechanics and Geomechanics;*
- *Design of underground spaces: support and reinforcement system, final lining, monitoring and back-analysis;*
- *Conventional (NATM) and Mechanized (TBM) tunnel design;*
- *Numerical modelling (Principals, Theory, Applications)*
- *Risk Management Plan in tunnelling (Risk-Analysis Driven Tunnel), .*

He was previously research assistant in Mining Engineering Department, Rock Mechanics Division, at Middle East Technical University (METU) in Ankara during 2001-2005.

He developed a closed-form elasto-plastic solution for determination of stress-deformation of rock tunnels used also in design of the grouted bolts in rock tunnels. Such a tool is able to produce the GRC, SCC, LDP for any kind of underground problems. His tunnel support pressure equation co-worked with Late Prof. Erdal Unal has been widely used in area of tunnelling. He modified the so- called GSI chart of Prof.Hoek for poor rock mass application that widely used in the field of geological engineering.

He has worked recently in many world-class tunnel projects mainly in Australia, Albania, Italy, Turkey, Iran, Slovenia, Chile, Argentina, China, India, Algeria, Greece, Russia, Singapore, Costa Rica, Malaysia, and the others.

He has participated in many international congresses in the field of tunnelling and rock mechanics and he has published many publications of which 4 have been cited by ISI scientific records.

As a segmental lining expert in GEODATA, he has recently carried out successfully several design and dimensioning the tunnel segmental linings (from tender design to constructive phases) for Ahvaz Metro in Iran, Metro Athens in Greece, Metro Singapore, Metro New Delhi, Mumbai, Ahmedabad, Bangalore in India, Urban railway connection in Perth in Australia, FAL project, Melbourne metro, Extension Metro of Moscow in Russia, Tabellout water conveyance tunnel in Algeria, Basento water delivery tunnel in Italy, Gubrist Tunnel in Switzerland , Metro Quito in Ecuador, Yindajihuang Water Supply Project in China, Metro of San Jose in Costa Rica, Metro Istanbul (Two lines in Asian part) in Turkey, Hydraulic tunnel in Bueno Aires in Argentina, and Yamanli II Headrace tunnel in Turkey, Cross River Rail project in Brisbane of Australia, West South Airport Link in Sydney . The FAL project (Forrestfield Airport Link) located in Perth of Australia was the main recent project in which many news aspects of the segmental lining have been proposed, of which the hybrid segment (SFRC+ steel reinforcement) is characterized. Dr. Osgoui was the chief Engineer in charge of developing such a project from Tender to constructive stages.

He has acted as tunnel engineer in many projects of which the Istanbul Metro Asian Part, Twin high speed railway tunnels in Malaysia; El Teniente Mineral Tunnels in Chile, Transandino transport Tunnel in Chile-Argentina, Alto Maipo hydropower project in Chile, Sochi complex in Russia, Different Iranian water supply projects, Indian urbanized soft ground metro projects and Reggio Salerno highway tunnel in Italy are cited.

He also acts as an engineer for many projects (different phase from tender to construction) in GEODATA Eng.

4.Professional Experience (Position Held)

Dates	**Presently (from January 2007)**
Current occupation or position held	**Senior Tunnel Engineer** (with 15 years international projects experience with GEODATA)
Main activities and responsibilities	Geotechnical and geomechanics senior engineer, particularly Design of underground spaces, Conventional and mechanized excavation methods
Name and address of employer	GEODATA S.p.A. Geo-engineering Company Corso Bolzano 14 10121- Torino- Italia www.geodata.it

Dates	**April 2006-August 2006**
Occupation or position held	Researcher
Main activities and responsibilities	Internship
Name and address of employer	TUSC (Tunnelling and Underground Spaces Centre). Politecnico di Torino. Ingegneria del Territorio, dell'Ambiente e delle Geotecnologie. DITAG.
Type of business or sector	Hard rock and urbanized tunnelling

Dates	**September 2002-September 2005**
Occupation or position held	Research and Teaching Assistant
Main activities and responsibilities	Researcher
Name and address of employer	Rock Mechanics Division, Mining Engineering Department. Middle East Technical University. 06531. Ankara- Turkey www.mine.metu.edu.tr
Type of business or sector	Rock Mechanics division

5.Educations

Dates	Fall 2002-Fall 2006 (graduation (Thesis defence date: 21 January 2007)
Title of qualification awarded	**Ph. D in Mining Engineering -Rock Mechanics**
Relevant subjects	Dissertation: Development of an elasto-plastic analytical model for design of grouted bolts in tunnels with particular reference to poor rock masses Advisor: Prof. Erdal Unal & Prof. Celal Karpuz
Name and type of organisation providing education and training	Department of Mining Engineering. Middle East Technical University (METU). 06531- Ankara / Turkey www.mine.metu.edu.tr
Level in national or international classification	**Doctorate(3.75/4)**

Dates	November 2005 – November 2006

Title of qualification awarded	**Master in Tunnelling and Tunnel Boring Machines (TBMs)**
Relevant subjects	Thesis title: Ground Reaction Curve of reinforced tunnel using a new elasto-plastic model Advisor: Prof. Pierpaolo Oreste
Name and type of organisation providing education and training	Politecnico di Torino, 10129 Torino, Italia www.polito.it
Level in national or international classification	**Specialist Degree (Second Master Degree) (honour 110/110)**
Dates	Fall 1998-Fall 2000
Title of qualification awarded	**MSc in Mining Engineering**
Relevant subjects	Thesis title : Design of ventilation system for Galandroud coal mine Advisor. Eng. Hasan Madani
Name and type of organisation providing education and training	Islamic Azad University, Tehran (South Branch)
Level in national or international classification	**Master Degree (honour 18.3/20) (honour)**
Dates	Fall 1995-Spring 1998
Title of qualification awarded	**BSc in Mining Engineering**
Relevant subjects	Rock Mechanics: Final project: Brittle rock failure criteria
Name and type of organisation providing education and training	Islamic Azad University, Tehran (South Branch)
Level in national or international classification	**Bachelor Degree (honour 16.5/20)**

6. Honours /Awards / Fellowship

- Honoured BSc graduate of department of mining engineering, Tehran Azad University, South Branch (1997).
- Honoured MSc graduate of department of mining engineering, Tehran Azad University, South Branch (1999).
- Granted as the teaching and research assistant of department of mining engineering. Rock Mechanics Division. Middle East Technical University (METU). 2001
- Post-Master scholarship Politecnico di Torino (2005-2006).
- First standing in National Entrance Exam for Master Program, Ministry of Science, Research and Technology (MSRT), Iran (1997). Amirkabir University of Technology

7. Publications

Book

B-1. Design of Grouted Bolts for Rock Tunnels Emphasis on Poor Rock Masses

Details
- Paperback: 208 pages
- Publisher: VDM Verlag (September 8, 2009)
- Language: English
- ISBN-10: 363918307X
- ISBN-13: 978-3639183078
- Product Dimensions: 8.5 x 5.9 x 0.7 inches

International Journal (IJ) Indexed and Refereed Papers

IJ-1. Osgoui, R & Oreste,P.P. (2007). Convergence-Control Approach for Rock Tunnels Reinforced by Grouted Bolts, using the Homogenization Concept. *Geotech and Geolo Eng.*25:431-440.
IJ-2. Osgoui, R & Unal,E. (2009). An empirical method for design of grouted bolts in rock tunnels based on the Geological Strength Index (GSI). *Eng Geolo* (107): 154-166.
IJ-3. Osgoui, R. Ulusay, R, Unal, E. (2010). An assistant tool for the Geological Strength Index (GSI) to better characterize poor and very poor rock masses. *Int.J.Rock.Mech. Min.Sci.*47 (4):690-697.
IJ-4. Osgoui, R & Oreste,P.P. (2010). Elasto-plastic analytical model for design of grouted bolts in Hoek- Brown medium. *Int. J. Numer. Anal. Meth. Geomech.* 34(16): 1651-1686.

International Conference (IC) papers

IC-1. Osgoui, R & Madani, H (2003). Designing the ventilation system for galandroud coalmine. *18th international mining congress and exhibition*. Edited by Ozbayoglu. Antalya, Turkey. 253-258.
IC-2. Osgoui, R & Unal, E (2005a). Rock reinforcement design for unstable tunnel originally excavated in poor rock mass. *ITA-AITES World Tunnel Congress, Underground Spaces Use: Analysis of the Past and Lessons for the Future*- Istanbul, Turkey, pp 291-296. Balkema.
IC-3. Osgoui, R & Unal, E (2005b). Characterization of Weak Rock Masses Using GSI-Index and the Estimation of Support- Pressure. *The 40th U.S. Rock Mechanics Symposium* - June 25-29, 2005 - Anchorage, Alaska.
IC-4. Osgoui, R. (2006). On the Assessment of the effect of the anisotropy in in-situ stress on support pressure in tunnels. *International Symposium on In-Situ Rock Stress*, Trondheim, Norway. 307-317.
IC-5. Osgoui, R. (2009). Numerical-aided elasto-plastic model for circular tunnel in Hoek-Brown rock masses. SINOROCK 2009. International Symposium on Rock Mechanics "Rock Characterization, Modelling and Engineering Design Methods". Honk Kong.
IC-6. Osgoui, R. Poli, A. Pescara, M. (2011). Challenging features in design and execution of a low overburden underpass - A case history from Malaysia: PLUS North-South Highway. ITA-AITES World Tunnel Congress. Helsinki. Finland.
IC-7.Renda D, Grasso P, Rizzo F, Pinchiaroglio L, Eusebio A, Pescara M, **Osgoui R**, Ballabeni F, Aguglia F, Zenti C L, Sterpi D. (2011). Improvement in soft ground tunnelling using an innovative technique. IS-AGTG: International Symposium on Advances in Ground Technology and Geo-information. Singapore, 1-2 December 2011
IC-8. Osgoui. R & Pescara. M. 2014. An integrated design approach for the design of segmental tunnel lining in an EPB-Shield driven tunnel-A case study in Iran: Ahwaz Metro

Project. Proceedings of the World Tunnel Congress 2014 – Tunnels for a better Life. Foz do Iguaçu, Brazil.
IC-9. Osgoui. R Poli, A & Pescara. M. 2016. Critical Comparison between the Double-Convex and Flat Radial Joints Features in Segmental Tunnel Lining. Eurock 2016. Rock Mechanics & Rock Engineering: From the Past to the Future. Turkey.
IC.10. Osgoui. R Poli, A & Pescara. M. 2017. Performance Analysis of Different Radial Joint Shapes in Segmental Tunnel Lining. World Tunnel Congress WTC 2017.
IC.11. Osgoui R, Quaglio G, Bohlouli M, Poli A. 2017. Some new aspects for design of steel fiber reinforced concrete segmental tunnel lining in Metro projects. CONGRÈS INTERNATIONAL DE L'AFTES.Paris.
IC.12. Poli A, Riella A, **Osgoui R**, Vercellino D.2018. Design Aspects of new railway line Rishikesh-Karanprayag in India. GALLERIE E GRANDI OPERE SOTTERRANEE.Vol 127., pp7-18.
IC.13. Neri D, Quaglio G, **Osgoui R**, Agazzoni R, Cuozzo N. 2018. An optimized practical solution for construction of cross passage in soft ground mechanized tunnelling in urban area. INTERNATIONAL CAE CONFERENCE AND EXHIBITION.Vicenza. Italy
IC.14. Osgoui R, Grasso P, Russo G. 2018. On the Concept of Innovative Risk Analysis-Driven Design Approach in Mining Engineering ". The 4th International Underground Excavations Symposium – Istanbul, Turkey.
IC.14. Osgoui R, Quaglio G, Poli A, Carrieri G.2021. Design aspects of segmental tunnel lining in difficult rock conditions. Eurock 2021, Published by IOP Conference Series: Earth and Environmental Science. Turin.

Published technical design guidelines (as a participator)

IFC-Tunnel Project. Report WP2: Requirements analysis report (RAR) v1.0 – 2020. Building Smart International.
Tunnel Design Guideline. Australian Tunnel Society. 2020.

Papers in Persian in Domestic Conference (PC)

PC-1. Madani, H & **Osgoui, R.** (2001). Ventilation system planning in developing tunnels. *Proceeding of 5th international tunneling conference*. University of Tehran. Tehran. In Persian.
PC-2. Madani, H & **Osgoui, R.** (2002). Modeling the ventilation system for Galandroud coalmine. *Proceedings of 4th congress on safety, occupational and environment health in mines and related industries*. Edited by mahvi. Sari, Iran. In Persian.

Unpublished Technical Papers (UP)

UP-1. Osgoui, R. (2003). Analytical design of rock-bolt systems. *Unpublished report*. Department of mining engineering. Rock Mechanics Division. Middle East Technical University.06531. Ankara. Turkey.

8. Languages

Mother tongue(s) ***Persian***

Other tongue(s)	Understanding		Speaking		Writing
European level (*)	Listening	Reading	Spoken interaction	Spoken production	
English	Excellent	Excellent	Excellent	Excellent	Excellent
Turkish	Excellent	Excellent	Excellent	Excellent	Good
Italian	Excellent	Good	Excellent	Good	Medium (B1)

9. International Professional Experiences (Examples)

IRAN

Name of assignment or project:

Ahwaz Metro Project (Iran)
Year: 2007
Location: Iran
Owner: City of Ahwaz
Client: Kayson Company
Position held: Tunnel Engineer for all disciplines: Ground characterization, risk management plan, segmental lining design

TURKEY

Name of assignment or project:

Electrified Double Track Project between Ipoh and Padang Besar Bukit Berapit and Larut Tunnel

Year: 2007-2008
Location: Malaysia
Client: KTMB – Keretapi Tanah Melayu Berhad
Position held: Tunnel Engineer for all disciplines: Rock mass characterization, site investigation, primary and final tunnel lining, underpass design through microtunnelling, pipe jacking technique

TURKEY

Name of assignment or project:

Istanbul Metro - Line Kadıköy-Kartal
Year: 2008-2011
Location: Turkey
Owner: Istanbul Metropolitan Municipality
Client: JV Astaldi SpA - Makyol - GulermaK
Position held: Tunnel engineer for all disciplines including ground characterization, design of all underground spaces by means of conventional method

CHILE

Name of assignment or project:

El Teniente Mine
Year: 2009
Location: Chile
Client: Codelco Chile

Position held: Project Engineer. Risk Analysis-driven tunnel design with fully probabilistic approach

CHILE-ARGENTINA	**Name of assignment or project:** Railway system between Los Andes (Chile) and Mendoza (Argentina) **Year**: 2008-2010 **Location**: Chile - Argentina **Client**: CASA **Position held:** Project Engineer. Risk Analysis-driven tunnel design with fully probabilistic approach
TURKEY	**Name of assignment or project:** YAMANLI II WEIR AND HEPP PROJECT **Year:** 2011 **Location**: Turkey **Owner:** ENERJI S.A. **Client:** NTF Construction Company **Position held:** Senior Engineer. Risk-Analysis Driven tunnel approach, TBM selection, and designer for segmental tunnel lining
RUSSIA	**Name of assignment or project:** Mosco metro - Kozhukhovskaya line - stage 1 - from station "Nekrasovka" to station "Kossino", including the connection with "Rudnevo" deposit. **Year**: 2013 – on going **Location**: Russia **Client**: OAO USK MOST **Position held:** Senior Engineer. Segmental tunnel lining
INDIA	**Name of assignment or project:** Delhi Metro Contract CC04 **Year**: 2012-2013 **Location**: New Delhi India **Client**: Continental Engineering Corp – CEC Int'l Corp India Pvt. Ltd. **Position held:** Senior Engineer. Segmental tunnel lining, Cross Passage, TBM issues
AUSTRALIA	**Name of assignment or project:** FAL (Forrestfield Airport Link). **Year**: 2015 – 2020- from tender to executive design **Location**: Perth Australia **Client**: Salini-Impregilo/NRW CJV **Position held:** Senior Engineer**.** Expert of Segmental lining design (SFRC) of line tunnels, Design of Cross passages, Tunnel Face pressure algorithm.(PAT) protocol of Advance TBM.
IRAN	**Name of assignment or project:** Tehran Shomal Highway **Year**: 2016 **Location**: North Tehran .Iran **Client**: Ministry of road. Tehran Shomal Co. **Position held:** Senior Engineer. Geomechanics aspects, Geomechanic Classifications, Risk-Analysis Driven Approach, Design of primary and final tunnel lining

GREECE	**Name of assignment or project:** Athens Metro - Line 3 extension - Haidari - Piraeus Section **Year**: 2012-2015 **Location**: Athens, Greece **Client**: JV J&P - Avax S.A. - Ghella S.p.A - Alstom Transport S.A.. **Position held:** Senior Engineer. Segmental lining design, development of PAT (Protocol for Advance of Tunnel) to assess the required EPB support pressure
SINGAPORE	**Name of assignment or project:** Eastern Region Line (ERL) – Contract E1001 **Year**: 2013-on going **Location**: Singapore **Client**: P.B. - Parsons Brinckerhoff **Position held:** Senior Engineer. TBM tunnels' issues
IRAN	**Name of assignment or project:** KANI SIB WATER TUNNEL PROJECT IRAN. The 35km long stretch of water conveyance Tunnel to be excavated by TBM **Year**: 2016-on going **Location**: Ilam, Iran **Client**: Iranian Water & Power Resources Development Co **Position held:** Senior Engineer. Risk-Driven Tunnel Analysis, TBM selection assistance, ground behaviour modelling and required support pressure
AUSTRALIA	**Name of assignment or project:** CRR (Cross River Rail). **Year**: 2018 -On going from tender to executive design **Location**: Brisbane Australia **Client**: CBG JV **Position held:** Senior Engineer**.** Expert of Segmental lining design (SFRC) of line tunnels, Design of Cross passages