

# M. BALANDARI TOROGHI

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Mining Engineer with 7+ years of experience in underground mining, rock mechanics, geotechnical engineering, mineral exploration, and tunneling projects. Experienced in rock mass characterization, ground stability assessment, laboratory testing, numerical modeling (RS2/RS3), and technical evaluation of underground excavations. Strong background in applying data analysis and Python programming to mining and geotechnical datasets, supporting digitalization and data-driven decision making. Seeking opportunities within the mining industry where expertise in rock engineering, mine geotechnics, and mining digitalization can contribute to safe, sustainable, and efficient mining operations.

## EXPERIENCE & EDUCATION

### 2022– PRESENT

#### **MINING DIGITALIZATION & DATA ANALYTICS (PROFESSIONAL DEVELOPMENT)**

- Applied Python programming to mining and geotechnical engineering datasets for automated data processing, statistical analysis, and technical reporting.
- Developed workflows for interpretation of rock mechanics laboratory results including UCS, BTS, triaxial and durability testing datasets.
- Studied applications of data analytics and machine learning techniques in underground mining operations, ground control, and predictive maintenance.

### 2017 – 2021

#### **RESEARCH ASSISTANT, ISTANBUL TECHNICAL UNIVERSITY**

- Worked on underground mining projects at the rock mechanics laboratory of the faculty of mining.
- Planned, supervised, and interpreted rock mechanics laboratory testing programs including UCS, BTS, Triaxial Compression, Direct Shear, Slake Durability, and Porosity testing.
- Evaluated rock mass behavior and provided engineering recommendations for underground excavation stability, support design, and mining method selection.
- Conducted rock mass characterization and engineering analysis supporting underground mine design and tunnel stability assessments.
- Numerical modeling (FEM) of underground tunnels with RS and RS3 then comparing results with analytical methods to optimize tunnel designs.
- Prepared technical reports and engineering recommendations for mining and underground construction projects.

### 2015 – 2016

#### **PROFESSIONAL DEVELOPMENT IN MINING ENGINEERING**

- Intensive preparation for international English proficiency exams to enable work in multinational mining environments.
- Self-directed study of underground mining software and rock mechanics applications.
- Development of knowledge in numerical and analytical methods for ground stability assessment.

- Study of international mining standards, ground support principles, and tunnel design methodologies.

**2012 – 2014**

**SITE GEOTECHNICAL ENGINEER, STRATUS INTERNATIONAL CONTRACTING COMPANY**

- Worked on tunneling operations for the Azad Dam in western Iran, an embankment dam with an integrated pumped-storage power plant.
- Conducted geological and geotechnical mapping of underground excavations.
- Performed rock mass classification using RMR, Q-System, and Geological Strength Index (GSI) methodologies.
- Assisted in assessment of ground support requirements and excavation stability.
- Collaborated with construction and engineering teams to ensure safe tunnel development and excavation activities.
- Monitored geotechnical conditions and documented excavation performance during construction.

**2009 – 2011**

**MS MINING ENGINEERING, AMIRKABIR UNIVERSITY OF TECHNOLOGY (TEHRAN POLYTECHNIC)**

- Master Thesis Title: Technical Analysis of Cut-off Grouting Requirement According to Multi Attribute Decision Making (Case Study: Aghchai and Talvar Dam Sites)
- Supervisor: Assoc. Professor Dr. Homayoon Katibeh, Advisor: Dr. Iraj Golabatunchi
- Grade A

**2006 – 2008**

**FIELD MINING ENGINEER, BEH AVARAN MINING COMPANY**

- Participated in metallic mineral exploration campaigns including geological mapping, prospecting, geochemical sampling, and target generation.
- Collected and interpreted exploration data for anomaly identification and mineral prospectivity assessment.
- Prepared geological maps, sampling databases, and geochemical anomaly maps.
- Coordinated sample preparation and laboratory submission procedures.
- Assisted senior geologists and mining engineers in exploration program planning and reporting.

**2005 – 2006**

**ENGINEERING INTERN, TECHNICAL SOIL & ROCK MECHANICS LABORATORY**

- Undertook an internship at the central rock mechanics laboratory of the province, conducting standard soil, rock, and concrete tests such as uniaxial and triaxial compression tests on rock cores, soil gradation analysis, and concrete mix design.

**2000 – 2005**

**BS MINING ENGINEERING - EXPLORATION, UNIVERSITY OF BIRJAND**

- Focused on mineral exploration operations including geochemical field exploration work

## TECHNICAL SKILLS

- Rock Mechanics
- Geological Mapping
- Mine Geotechnics
- Tunnel Engineering
- Rock Mass Classification (RMR, Q, GSI)
- Underground Mining
- Ground Stability Analysis
- Numerical Modeling

## LANGUAGES

- English – Fluent, Persian – Native, French – Basic, Turkish – Basic

## LICENSES & CERTIFICATIONS

- ✓ GIS Basics & ArcGIS Pro Basics - Issuing organization: Esri - Credential ID 05162021
- ✓ Data Analysis with Python (IBM Badge) - Issued by Coursera, Authorized by IBM, [See credential](#)
- ✓ Python for Everybody Specialization - Issued by Coursera, Authorized by University of Michigan, [See credential](#)
- ✓ TOEFL iBT (94 Total), GRE (Quantitative Reasoning (160), Verbal Reasoning (147))