Onur Koç

Senior Tunnel Engineer
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Design of underground structures for rail, road, energy and water supply, from early studies through construction, and independent checking of structural designs.

EDUCATION

2008 — **Dipl.-Ing. (MSc) Civil Engineering**
TU Wien (Vienna University of Technology)
Geotechnics and Construction Management

2001 — **BSc Civil Engineering**
Istanbul Technical University
Concrete structures

LANGUAGES

Turkish: native
German: C2
English: C2
French: B1

PERSONAL DETAILS

Date of birth	01/06/1979
Nationality	Austrian
Marital status	Married, one daughter
Driving licence	B

MEMBERSHIPS

ÖGG – Austrian Society for Geomechanics

PROFILE

More than 18 years of experience in tunnelling and underground construction, with projects in Europe, North and South America, the Middle East and North Africa, including the Semmering Base Tunnel, the Eurasia Tunnel in Istanbul, the Granitztal tunnel chain of the Koralm Railway and hydropower projects in Israel and Chile. Currently leads a team of five engineers and carries out independent checking of structural designs for SBB infrastructure projects.

CAREER

2023 – present — **ARX Group SA**, Zurich (Switzerland)
Senior Tunnel Engineer / Project Manager

2018 – 2023 — **Dr. Sauer & Partners GmbH**, Salzburg (Austria)
Senior Tunnel Engineer / Project Manager

2008 – 2018 — **IGT GmbH**, Salzburg (Austria)
Structural Engineer / Tunnel Engineer

KEY SKILLS

- Design of complex underground structures
- Underground works for hydropower: steel-lined pressure shaft, pressure tunnels, surge tank
- Independent checking of structural designs (Category 3 check)
- NATM, TBM, cut-and-cover
- 3D FEM and tunnel structural analysis
- Risk management
- Project management

SELECTED PROJECTS

since 2024 — Function: Project Manager / Senior Tunnel Engineer

AQUANOVO drinking water supply, Zurich / Switzerland

Client	City of Zurich
Project	Planning of a new drinking water transmission main for the City of Zurich. Comparison of seven construction variants (1A–2B) using microtunnelling, horizontal directional drilling, TBM and open-cut construction.
Services	Variant evaluation, alignment planning, interactive visualisation (longitudinal profile, alignment), construction concept
Project phases	Preliminary design

2021 – 2023 — Function: Sub-Project Manager / Senior Tunnel Engineer

Manara Pumped Storage Power Plant / Israel

Client	Electra Infrastructure
Cost / period	USD 450 million, 2021–2026
Project	Pumped storage plant in northern Israel with a single 156 MW pump turbine: upper and lower reservoirs, powerhouse cavern, low- and high-pressure waterways, surge tank and access tunnel.
Services	Led a team of three engineers (scope, budget). Design of the steel liner in the high-pressure shaft, high-pressure tunnel, low-pressure tunnel, access tunnel and surge tank; contribution to the powerhouse cavern
Project phases	Detailed design

2021 – 2022 — Function: Senior Tunnel Engineer

Effluent Outfall Tunnel, Los Angeles / USA

Client	Dragados USA
Cost / period	USD 630.5 million, 2019–2025
Project	Effluent outfall tunnel for the Joint Water Pollution Control Plant (JWPCP), about 12.9 km (8 miles) long, about 5.5 m (18 ft) in diameter. First use in the USA of post-tensioned segmental lining, over up to 40 % of the alignment.
Services	Design of starter and tail tunnels for the TBM launch; risk assessment and mitigation design for the TBM drive in squeezing ground
Project phases	Detailed design

ALL REFERENCE PROJECTS

since 2025 — Function: Project Manager

Gare de Lausanne (Nouveau Métro) / Switzerland

Client	SBB / CFF
Project	As part of the SBB programme «Léman 2030», Lausanne station is being comprehensively renewed: new platforms and underpasses while train operations continue. First section in service in 2030, full completion by 2037.
Services	Independent checking of the structural calculations (equivalent to a Category 3 check, UK): bored pile walls, micropiles, top-down construction, excavation support; geotechnical inspection; risk management
Project phases	Preliminary design / Tender

2025 — Function: Senior Tunnel Engineer

Alto Maipo Hydropower Project / Chile

Client	Strabag AG
Project	Short-term assignment of three months during construction.
Services	Evaluation and assessment of a tunnel collapse
Project phases	Construction

2023 – 2025 Function: Project Manager / Senior Tunnel Engineer

Cargo sous terrain / Switzerland

Client	CST
Project	Underground network for automated, electric freight transport in Switzerland. The design covers a 75 km single-tube tunnel, mostly bored by TBM with SCL sections, plus shafts and portals.
Services	Project management, variant planning, tunnel concept
Project phases	Preliminary design / Tender

2023 – 2025 Function: Project Manager / Senior Tunnel Engineer

Various tunnel and infrastructure projects / Switzerland

Client	RhB, MGB, CSC/Webuild, Swissgrid
Project	Fideris tunnel (RhB): risk analysis with risk matrix. Täsch–Zermatt (Matterhorn Gotthard Bahn): variant analysis. Le Locle tunnel (CSC/Webuild): construction concept incl. concept for karst cavities during TBM drive. Swissgrid Innertkirchen, lots 1 and 2: tender analysis.
Services	Risk analysis, construction concepts, bid preparation, variant planning
Project phases	Preliminary design / Tender / Bid

2019 – 2022 Function: Senior Tunnel Engineer

French Hill Tunnels, Jerusalem / Israel

Client	Electra Infrastructure
Cost / period	USD 140 million, 2019–2023
Project	Two twin tunnels with a total length of 3.5 km beneath one of Jerusalem's busiest junctions, passing under roads 1 and 60, the Uzi Narkis bridge and the LRT tracks. Excavation with low rock cover and in fill, temporary access tunnel, up to 12 headings at the same time.
Services	Detailed geotechnical and structural design of excavation and support (NATM)
Project phases	Detailed design

2020 – 2021 Function: Senior Tunnel Engineer

Eglinton Crosstown LRT, Toronto / Canada

Client	CTSC: SNC-Lavalin, Dragados, Aecon, EllisDon JV
Cost / period	approx. USD 8 billion, 2015–2021
Project	Light rail line in the Greater Toronto Area: 19 km corridor along Eglinton Avenue with 15 underground stations and a 10 km twin-bored tunnel.
Services	Design of the false ceiling connections and reinforced concrete design
Project phases	Detailed design

2018 – 2021 Function: Senior Tunnel Engineer

Purple (D) Line, Section III, Los Angeles / USA

Client	Los Angeles County Metropolitan Transportation Authority (LACMTA)
Cost / period	USD 1.3 billion, 2020–2026
Project	Heavy rail line of about 3.7 km (2.32 miles), double track, with tunnels and 13 cross passages. The cross passages require dewatering and ground improvement; excavation and support follow SEM principles.
Services	Analysis and design of the cross passages
Project phases	Detailed design

2017 – 2018 Function: Structural and Geotechnical Engineer

Vienna metro U5/U2, stations / Austria

Client	Wiener Linien GmbH
Project	Two new underground stations in the city centre, beneath multi-storey commercial buildings.
Services	3D structural analysis of the stations; settlement analysis of the surface buildings
Project phases	Tender design

2015 – 2017 Function: Structural and Geotechnical Engineer

Koralm Railway, Granitztal tunnel chain, BL 50.4 / Austria

Client	ÖBB
Project	Total length about 6.5 km. The cut-and-cover tunnel, about 600 m long, connects two mined tunnels of the high-speed line.
Services	Analysis and design of the cut-and-cover tunnel and the tunnel bridge
Project phases	Detailed design

2015 – 2017 Function: Structural Engineer

Geisswand road tunnel / Austria

Client	ASFINAG
Project	Road tunnel of about 2.2 km, two lanes, excavated cross-section 76 m² (NATM).
Services	Rehabilitation of floor heave caused by swelling; design of the road pavement against swelling pressure
Project phases	Detailed design

2015 – 2016 Function: Structural Engineer

Arlberg road tunnel / Austria

Client	ASFINAG
Project	At 13.976 km, Austria's longest road tunnel (S16, Tyrol–Vorarlberg).
Services	Structural analysis for the tunnel rehabilitation (components of the rehabilitation concept)
Project phases	Detailed design

2014 – 2015 Function: Structural Engineer

Gleinalm road tunnel / Austria

Client	ASFINAG
Project	Motorway tunnel on the A9 Pyhrn in Styria, 8.32 km long. New second tube (opened 2017), followed by rehabilitation of the existing tube.
Services	Analysis of the final lining of the new tube; rehabilitation of the existing tube
Project phases	Detailed design

2012 – 2016 Function: Tunnel Engineer

Semmering Base Tunnel / Austria

Client	ÖBB
Project	Railway tunnel of 27.3 km between Gloggnitz and Mürzzuschlag, two tubes, in difficult geological conditions.
Services	3D analysis of the drive through the fault zone; analysis of the NATM and TBM cross-sections; analysis of the final lining
Project phases	Tender design

2011 – 2013 — Function: Structural and Tunnel Engineer

Eurasia Tunnel (Istanbul Strait Road Crossing), NATM section / Turkey

Client	Yapı Merkezi
Project	Double-deck road tunnel of 5.4 km beneath the Bosphorus, down to –106 m; total route 14.6 km between Kumkapı (Europe) and Koşuyolu, Kadıköy (Asia).
Services	Analysis and design of primary and final lining in the NATM section, incl. intersections; design of cut-and-cover sections
Project phases	Detailed design

2011 — Function: Structural Engineer

Himmelreich tunnel / Austria

Client	ASFINAG
Project	Tunnel of about 1,045 m on the Hausmannstätten bypass (B73, Styria).
Services	Analysis and design of the tunnel cross-sections; formwork stripping analysis of the false ceiling (stripping time)
Project phases	Detailed design

2008 – 2011 — Function: Tunnel Engineer

Road tunnels T2 and T3, upgrade of RN43, Bejaia / Algeria

Client	Özgün Construction
Project	Upgrade of a coastal road along a cliff: tunnels T1 (880 m), T2 (635 m), T3 (268 m) and escape tunnels E1 (137 m) and E2 (145 m), in heavily karstified limestone, block breccia and folded clay- and siltstone. Portals and alignment were optimised in option studies.
Services	Analysis of the typical cross-sections
Project phases	Detailed design

2008 – 2011 — Function: Structural and Geotechnical Engineer

A10 Tauern motorway, Tauern road tunnel / Austria

Client	ASFINAG
Project	Twin-tube road tunnel of 6,546 m in the province of Salzburg, two lanes per tube.
Services	Analysis and design of the final lining, false ceiling and ventilation cavern; analysis and design of a retention dam
Project phases	Detailed design

PUBLICATIONS

2023 — P. Salak, O. Nathan, O. Koç, A. Pamsl
French Hill Road Tunnels: A Pragmatic Rock Support Approach
Proceedings of WTC 2023, Athens

2016 — B. Kohlböck, O. Koç, T. Ayten
Istanbul Strait Road Tube Crossing: Design of NATM Tunnels and Asian Transition Box Excavation
Geomechanics and Tunnelling 9 (2016), No. 4, pp. 338–344

2013 — O. Koç
Strategies for Design of the Support Measures in Tunneling on Basis of Eurocode
Proceedings of the 3rd International Symposium on Underground Excavations for Transportation, 29 Nov 2013, Istanbul