



# Fehmi Demiralp

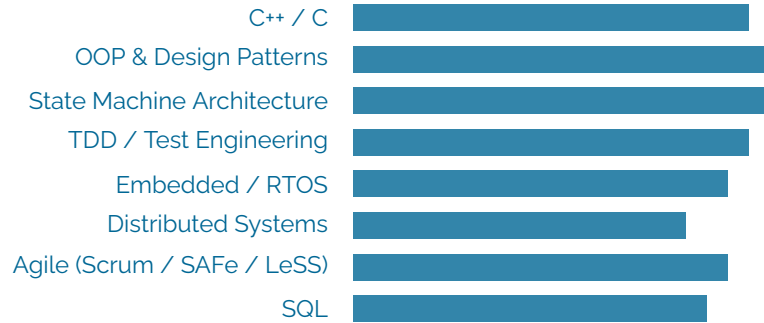
## Senior C++ / Embedded Engineer

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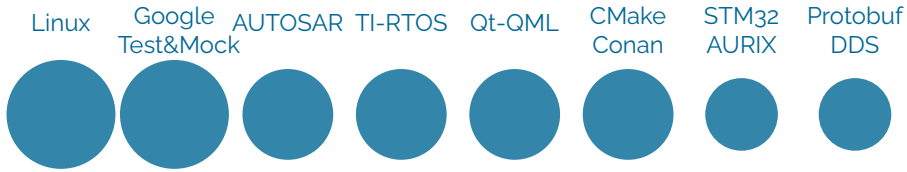
### PROFILE

Senior C++ Engineer with 30+ years delivering safety-critical and certified commercial products across automotive, defense, bioinformatics, and industrial domains. Approaches problems at the systems level: defines module boundaries, ownership semantics, and threading models before writing code. Thinks in abstractions, builds in concrete tested implementations. Author of two programming books endorsed by the Turkish Ministry of Education; holder of a hardware-level security patent. Open to embedded, desktop, and backend roles in any industry.

### Core Competencies



### Tools & Environments



### EXPERIENCE

05/2022 – 01/2026

#### Senior C++ Software Engineer

DXC Luxoft, Munich/Germany

Three successive projects within the same engagement:

#### Signal Processing – Test Engineering

01/2025 – 01/2026

Plug-in based media processing system handling video, audio, and subtitle streams. Derived system requirements from the existing codebase, authored test derivation documents, and implemented Google Test/Mock suites. Measurably increased test coverage and code quality across the pipeline.

C++ · Linux · Google Test/Mock · Podman · Git · Scrum/Kanban

#### System Health Monitoring & Alarm Logging

04/2024 – 12/2024

Designed a Protobuf-based distributed messaging layer to collect health data across networked nodes. Built health-status calculation engine and Qt/QML control-screen dashboards for raw and processed telemetry.

C++ · Linux · Qt/QML · Protobuf · DDS · Conan · Podman · Git

#### Inductive Charging Station (BRUSA / e-mobility)

05/2022 – 03/2024

- Implemented UWB ranging protocols per **IEEE 802.15.4z-2020** within an **AUTOSAR Classic** architecture across multiple ECUs
- Developed diagnostic-related functions for ranging and communication components; contributed to early-stage diagnostic module integration
- Supported requirement definition, integration, and validation in a complex multi-ECU automotive environment

C · AUTOSAR Classic · STM32 · Qorvo DW3xxx · AURIX TC3xx · Lauterbach · Git

- 09/2019 – 04/2022 **Senior C++ Software Engineer / Product Owner** TTTech Auto, Munich/Germany  
*AUDI ADAS – High Power Computing (SAFe/Agile)*  
 Product Owner for the ADAS analysis framework: maintained product backlog, ran sprint planning, and represented the team in Release Train meetings. Coordinated requirement evaluation sessions with AUDI stakeholders.  
 Jira · Confluence · PTC Windchill · Bitbucket · SAFe/Scrum  
*BMW Thunder Project (LeSS/Agile)*  
 Extended and refactored hierarchical state machine models to support new vehicle features. Implemented unit and acceptance tests with Google Test.  
 C++ · State Machines · Enterprise Architect · Google Test · Agile LeSS · CLion
- 01/2018 – 07/2019 **Senior SAP MII/ME Consultant** EST Enerji, Istanbul/Turkey  
*Freelance contract – began as a C++ project, evolved into SAP digital-integration delivery.*  
 Connected legacy manufacturing machines to modern SAP-based production systems using SAP MII/ME, HANA, UI5, and XML. Delivered end-to-end digital integration services for industrial plant operations.  
 SQL · JavaScript · SAP/HANA · SAP MII · SAP ME · XML
- 11/2012 – 10/2015 **Embedded Software Specialist** Metra Elektronik, Ankara/Turkey  
*Freelance contract (full-time on-site) – ASELSAN Digital Tachograph, EU type-approved certified commercial product, in active production.*  
  - Owned full firmware (~75K LOC): low-level drivers through application layer on TI DSP / SYS/BIOS (TI-RTOS)
  - Implemented **ISO 14230-2 (KWP2000)** automotive diagnostic stack – low-level drivers and full protocol state machine in a bare-metal environment
  - Developed all communication interfaces: CAN, UART, SPI, I<sup>2</sup>C, IPC, PNOR Flash
  - Integrated ICC smart card, LCD display controller, and thermal printer modules
  - Contributed to system validation, interoperability testing, and EU type-approval certification
 C / C++ · SYS-BIOS (TI-RTOS) · Eclipse/CCS · Oscilloscope · Redmine · SVN
- 03/2010 – 01/2018 **Freelance Senior Software Consultant** Self-employed, Istanbul/Turkey  
*(Includes Metra and EST engagements above; selected other projects:)*  
  - *SatelCom* – Developed embedded router software on OpenWRT/LEDE (C, Linux)
  - *BodeAG* – Led software development; established CM and issue tracking; supported robot integration and ERP customization
  - *KaTron* – Directed teams building customer-specific simulator software
  - *Plano Engineering* – Decoded ASN.1-encoded binary radio-network data for performance analysis and optimisation
 C++ · ASN.1 · Oracle · Linux · OpenWRT · Redmine · SVN
- 03/2007 – 02/2010 **Senior Software Engineer** EMBL/EBI, Hinxton/United Kingdom  
 Developed and maintained the EMBL Nucleotide Sequence Database – one of Europe's primary biological data repositories.  
  - Extended and hardened a ~300K LOC C++ codebase used in data-release and data-submission pipelines; improved performance and eliminated critical defects
  - Administered Oracle databases holding tens of millions of sequence records, ensuring reliability, scalability, and data integrity
 C++ · Visual C++ · Oracle · Linux · SVN · Oracle Developer Studio
- 06/2006 – 12/2006 **Senior Software Engineer** Envisional Limited, Cambridge/United Kingdom  
 Built and enhanced anti-fraud and anti-phishing software across all layers (backend to UI). Developed eBay XML API-based auction monitoring module, improving detection accuracy and automation efficiency.  
 C++ · Linux · MySQL · JavaScript · XML · SVN
- 10/2000 – 03/2006 **Software Engineer** Lion Bioscience Ltd, Cambridge/United Kingdom  
*SRS Web Services Server*  
 Designed and built a multi-threaded web services server from scratch, enabling migration from a legacy CGI portal to a JSP architecture with significantly improved scalability and throughput.  
*Cross-Language Integration Libraries*  
 Developed SWIG/gSOAP-based libraries giving access to the company's core C codebase from C++, Java, Perl, and Python, accelerating customer development workflows.  
 C++ · C · gSOAP · SWIG · GDB · Linux/UNIX · Autoconf/Automake · Bash · CVS

1989 – 2000

### Earlier Career

- **TÜBİTAK - Marmara Research Center** (1991–1996) *Senior Software Engineer* – R&D in OOP, CASE tools, real-time process control (HISPAR), neural network frameworks, multimedia, industrial robot programming interfaces, and GIS-based city planning. Tech: C++, C, Prolog, UNIX, Borland C++
- **Momentum A.Ş.** (1996–1998, 1999–2000) *Training Specialist & Consultant* – Customer training on IDEAS CAD/CAM/CAE; sales & technical support for Metaphase PDM software
- **Turkish Army** (1998–1999) *Lieutenant* – Mandatory service
- **Teleteknik Computer** (1989–1991) *Application Engineer* – Pre-sales demonstrations of IDEAS CAD/CAM/CAE software

### SIDE PROJECTS

2015 – present

#### UMTSM – State Machine Code Generator

[github.com/demiralp \(examples\)](https://github.com/demiralp/examples)

Personal model-driven development toolchain for hierarchical state machines. Generates production-ready C and C++ from a custom specification language, handling state hierarchy, transition orchestration, history, and activity lifecycle automatically. Developers implement only guard and action logic. Integrates with CMake and CI pipelines. Target: evolve into a commercial product.

C++ · C · Code Generation · MDD · CMake

live at fedem.eu

#### FFS – Pluggable Component-Based Web Framework

[fedem.eu](https://fedem.eu)

Production web application framework written in C++17 using the Wt toolkit, built around a plug-in architecture for independently deployable components. Includes a full DevOps pipeline with separate developer, test, and production containers and automated deployment workflows. Powers fedem.eu in live production.

*Developed using AI-assisted engineering: architecture, requirements, and technical decisions by the author; implementation accelerated with Claude (Anthropic) as an AI pair-programming tool.*

C++17 · Wt Framework · Plug-in Architecture · Docker · CI/CD · Linux · AI-Assisted Development

### EDUCATION

1994 – 1997

#### MSc, Mechanical Engineering

[Istanbul University](https://www.istanbuluniv.edu.tr)

Thesis: *Computer Aided Training on the Finite Difference Method*

1985 – 1989

#### BSc, Aeronautical Engineering

[Istanbul Technical University](https://www.istanbulteknik.edu.tr)

Thesis: *Computer Aided Panel Modeling*

### PUBLICATIONS & PATENT

1993

Object Oriented Programming with Turbo/Borland C++ – Book (Turkish); officially endorsed by the Turkish Ministry of Education

1991

Turbo C Programming Language – Book (Turkish)

2013

An Electronic System for Information Security – Türk Patent 2013/15640 (hardware-level security, X-ray resistant)

### LANGUAGES

**English** Proficient  
**Turkish** Native  
**German** Basic