

Materials Scientist, Metallurgist and Mechanical Engineer with over a decade of applied R&D experience in materials selection, testing, and multi-material system development across academia and industry. Specialized in identifying, validating, and integrating advanced material solutions including metals, polymers, coatings and composites for reliable performance in demanding environments. Proven track record in cross-functional collaboration with engineering, manufacturing, and process teams to deliver durable, scalable, and sustainable material technologies.

Güven Kurtuldu

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Education

- PhD in Materials Science and Engineering, EPFL, Lausanne, Switzerland, 2014
- MSc in Mechanical Engineering, Boğaziçi University, Istanbul, Turkey, 2009
- BSc in Mechanical Engineering, Boğaziçi University, Istanbul, Turkey, 2007

Languages

English – Fluent
French – B2
German – B2
Turkish – Native

Possessing a residence permit C in Switzerland

09/2023 to 10/2025

Senior Development Engineer, cross-ING, Zürich

- Selection and application of advanced polymers for the development of high-performance arm prosthetics, focusing on durability, flexibility, and biocompatibility.
- Leading life cycle analysis project for various metals, assessing environmental impact, sustainability, and efficiency to optimize material use.
- Managing cross-functional projects to define material specifications for existing and new products, aligning with industry and regulatory standards.

02/2021 to 08/2023

R&D Consultant on a contract basis

- Implementing cutting-edge testing methodologies to evaluate material properties and performance for bulk and coating, enhancing product development processes in jewellery and watch industry.
- Coordinating with external labs and suppliers to align material testing and selection with project timelines, enhancing product development efficiency.
- Offering advanced training in thermal characterization of materials, enhancing expertise in evaluating stability and performance of polymers and metals.

01/2015 to 08/2020

Senior Scientist, Department of Materials, ETH Zurich

- Managing thermal analysis labs, enhancing material research and industrial application.
- Developing innovative strategies for metallic alloy research, leading to new material insights.
- Investigating advanced materials like quasicrystals and BMGs, targeting commercial applications.
- Analyzing microstructures in additive manufacturing for medical and aerospace alloys.

02/2014 to 12/2015

Post-doctoral researcher, Materials Science and Engineering, EPFL, Lausanne

- Conducting in-situ solidification experiments using synchrotron X-Ray at PSI, Switzerland to advance materials science for medical material innovation.
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02/2009 to 01/2014

Doctoral researcher and teaching assistant, Materials Science and Engineering, EPFL, Lausanne

- Discovery of new nucleation mechanisms in Al and Au alloys during the liquid-to-solid transition, paving the way for the development of innovative grain refiners, enhancing material performance in aerospace and electronics. industries. to investigate the effect of solute elements in Al- and Au- based alloys.

Skills

- Materials selection, testing, and validation of metals, polymers, coatings, composites, and elastomers
- CAD design (SolidWorks, experience with equivalent tools)
- Prototyping, on-site inspections, and cross-functional collaboration
- SEM, TEM, FIB, EBSD, EDX microstructural analysis
- X-ray diffraction and tomography (synchrotron and lab-scale)
- Thermal analysis (TGA, DSC, DMTA, nanocalorimetry)
- Solidification of metallic alloys: Single crystal growth, Bridgman solidification, arc melting and melt spinning.
- MATLAB, Mathematica, C++, ThermoCalc, Dictra, CalcoSoft.
- Additive manufacturing and alloy design for aerospace, medical, and industrial applications
- Finite Element Analysis (ABAQUS)

Collaborations

I have been part of several collaborations with researchers from different academic institutions and industrial partners on various topics:

- Dr. Philippe Jarry, Constellium, France and Prof. Julien Zollinger, Institute Jean L'amour, Nancy
  Design of new Al-alloys for additive manufacturing in aerospace indusrty
- Dr. Tuomas Jalanti, Rolex, Switzerland
  Grain refinement of gold alloys
- Prof. Fabien Sorin, EPF Lausanne
  Fabrication of metallic glass nanofibers
- Prof. David Norris, ETH Zürich
  Investigation of GeTe phase change nanoparticles via FDSC
- Prof. Roland Logé, EPF Lausanne
  Powder bed fusion additive manufacturing of Au-, Pt- and Pd-based bulk metallic glasses and crystalline alloys
- Dr. Andreas Blatter, PX Group, Switzerland
  Casting of Pt-based bulk metallic glasses
- Dr. Volker Schnabel, Department of Materials, ETH Zürich
  Thermally induced phase transformations in Ni/Al reactive nanolayers