

Kussai Waleed Alrini

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SUMMARY

I am a dedicated and detail-oriented civil engineering graduate with a strong passion for research and sustainability. Throughout my academic and professional career, I have gained valuable experience in various aspects of civil engineering, including structural design, site engineering, and asphalt pavement materials. With Over 4 years of experience conducting studies and experiments in the laboratory setting as a research assistant, I have honed my skills in working independently and collaboratively with colleagues to develop and conduct research projects. I have a proven ability to write research reports, analyze data, and present results. My experience in Superpave mix design and performance testing on both asphalt mixtures and binders has given me a solid understanding of asphalt pavement materials and their behavior under different condition.

EXPERIENCE

Intern (Site Engineer)

Gulf Pioneers Contracting Company (GUPCO)

June 2018 - February 2019, Abu Dhabi, UAE

- Gained experience in construction site work including piling, surveying, and finishing tasks during two separate internships from June 2018 to August 2018 and from December 2018 to February 2019.
- Assisted with preparing site reports and progress updates for senior engineers.
- Learned how to read and interpret construction drawings and specifications.
- Collaborated with site teams to ensure timely and accurate completion of construction projects.
- Managed site inventory and equipment maintenance to ensure smooth operations.
- Developed skills in using AutoCAD and other project management software for construction documentation and reporting.

Intern (Structural Design)

Harmony Art

May 2020 - June 2020, Sharjah, UAE

- Designed concrete structures, including residential buildings and commercial complexes, utilizing Etabs and Safe software.
- Produced precise and detailed structural drawings using AutoCAD, ensuring compliance with design standards and requirements.
- Analyzed two-dimensional and three-dimensional structures independently using Etabs, Safe, and AutoCAD, gaining valuable experience in structural analysis and design.
- Collaborated with senior engineers and project managers to deliver accurate and efficient design solutions for clients.
- Conducted site visits and construction inspections, gaining practical knowledge of building codes and construction practices.
- Demonstrated exceptional problem-solving skills and attention to detail, resulting in successful completion of complex design projects within deadlines.

Research Assistant

**University of Sharjah
Sharjah, UAE**

December 2019 – February 2024,

- Conducted Superpave mix designs and analyzed asphalt mixture performance under the supervision of Dr. Waleed Zeiada at the Transportation and Pavement Lab, University of Sharjah.
- Utilized advanced pavement performance testing equipment to test asphalt binders and mixtures, maintaining and calibrating laboratory equipment for accurate and consistent results.
- Utilized advanced testing equipment such as the Asphalt Mixture Performance Tester (AMPT), Universal Testing machine (UTM), and Dynamic Shear Rheometer (DSR), as well as conventional binder testing, such as penetration, softening point, and rotational viscometer.
- Prepared and presented research findings and reports to stakeholders, including academic conferences and technical committees, and contributed to the publication of research articles in peer-reviewed journals.
- Collaborated with other research assistants and faculty members to support ongoing projects in the Transportation and Pavement Lab, demonstrating a strong understanding of material properties and behavior, industry standards, and best practices related to asphalt pavement materials.
- Developed problem-solving skills through the application of scientific principles and data analysis techniques, managing time effectively to meet project deadlines and ensure timely completion of research objectives.
- Coordinated with stakeholders to develop and execute research plans, demonstrating excellent organizational and communication skills.

Research Fellow

Alma Mater Studiorum - University of Bologna

May 2024 - Present, Bologna, Italy

PROJECTS

Using recycled plastic waste in asphalt roads in the UAE

University of Sharjah X Ministry of Energy and Infrastructure • May 2021 - Present

- Collaborated with the Ministry of Energy and Infrastructure to incorporate recycled plastic waste into asphalt pavement, contributing to sustainability goals.
- Conducted in-depth research and analysis of the mechanical properties of asphalt pavement incorporating plastic waste, utilizing a range of performance tests such as Superpave mix design, flow number, dynamic modulus, axial fatigue, and indirect tensile tests.
- Explored new methods and techniques to enhance performance and durability of asphalt pavement using recycled plastic waste, contributing to ongoing research efforts.
- Analyzed data from laboratory tests and field trials, and presented results in progress reports, demonstrating strong analytical and reporting skills.
- Developed expertise in Superpave mix design, an essential skill for high-performance asphalt pavement, by applying it to the specific context of the UAE.
- Contributed to the development of sustainable infrastructure solutions in the UAE by leveraging technical knowledge in pavement engineering and materials science.

SBS Modified Mixture Performance Testing

- Conducted advanced performance testing including, Dynamic modulus, Stress Sweep Rutting (SSR) Test, Hamburg Wheel Tracking Test, Moisture Damage Test.
- Reported findings to colleagues and stakeholders

Road Marking Project

- Conducting elemental analysis on contaminated road marking using XRF, TGA and SEM.
- Reported findings to colleagues and stakeholders

Alternative Binder

- Developed and created alternative asphalt binder using high density hydrocarbon resins and bio-oils.

GreeNexUS: SUBLUS Sustainable Bio-pavements for Low-emitting Urban Surfaces

Published Work: "Investigating the Effect of Polyethylene Terephthalate Recycled from Waste Plastic Bottles on Asphalt Binder Under UAE's Climate Conditions"

University of Sharjah • February 2022 - February 2022

- Conducted extensive research on incorporating recycled PET from waste plastic bottles into asphalt binder in UAE's climate conditions.
- Analyzed PET waste's effects on asphalt binder's performance and durability through standardized tests.
- Presented research findings at 2nd International Conference on Advanced Systems and Electrical Technologies, showcasing excellent communication skills.
- Published research paper in IEEE Xplore Digital Library, demonstrating strong scientific writing abilities and commitment to sustainability.
- Alraini, K. W., Al-Khateeb, G., & Zeiada, W. (2022, March). Investigating the Effect of Polyethylene Terephthalate Recycled from Waste Plastic Bottles on Asphalt Binder Under UAE's Climate Conditions. In 2022 2nd International Conference on Advanced Systems and Electrical Technologies (ASET) (pp. 351–356). IEEE. <https://doi.org/10.1109/ASET53988.2022.9734955>.

Assessment of synergistic effect of nanoparticles and nanotube fibers for superior performing roadways in the UAE

University of Sharjah • December 2019 - March 2020

- Conducted a thorough literature review to investigate the current state-of-the-art in asphalt binder modification with nanoparticles and nanotubes fibers to identify research gaps and opportunities for improvement.
- Designed and performed laboratory experiments to assess the effects of different combinations of nanoparticles and nanotube fibers on the physical and rheological properties of asphalt binder.
- Utilized multiple standardized testing procedures, such as rotational viscosity, penetration, and softening point, to evaluate the performance of the modified asphalt binders.
- Analyzed and compared the test results of different asphalt binder formulations to identify the most promising combination of nanoparticles and nanotube fibers for further investigation.
- Developed a poster presentation for the ASTM Poster Competition, showcasing the project's findings and won the 2nd place prize in the competition.
- Presented the research results and findings at the 8th Sharjah Sustainability Award and won the award for the best assessment research.

EDUCATION

Ph.D. in Health Safety and Green Systems

Department of Civil, Chemical, Environmental and Materials Engineering

Academic discipline: ICAR/04 ROADS, RAILWAYS AND AIRPORTS • Alma Mater Studiorum - University of Bologna • Bologna, Italy • Ongoing

Masters of Science in Civil Engineering

Pavement Materials • University of Sharjah • Sharjah, UAE • Ongoing (Expected Sept 2023) • 4.0

Bachelor's of Science in Civil and Environmental Engineering

University of Sharjah • Sharjah, UAE • 2021 • 3.44

LANGUAGE SKILLS

IELTS Test

7.0 Overall Score

March 2017

Duolingo English Test

145 Overall Score

June 2023

A1 Deutsch

2019

SKILLS

- Proficient in using structural analysis and design software tools such as Etabs, Staad, Leap, and Safe, with knowledge of various modules and tools available in each software package.
- Experienced in creating detailed 2D and 3D drawings for architectural, engineering, and construction projects using AutoCAD, including layer management, dimensioning, and 3D modeling.
- Familiar with the basic tools and functions of Adobe Photoshop, including image editing, color correction, and graphic design.
- Advanced proficiency in Microsoft Office Suite, including Word, PowerPoint, and Excel, with skills in creating and formatting documents, designing engaging presentations, and managing data in spreadsheets.

