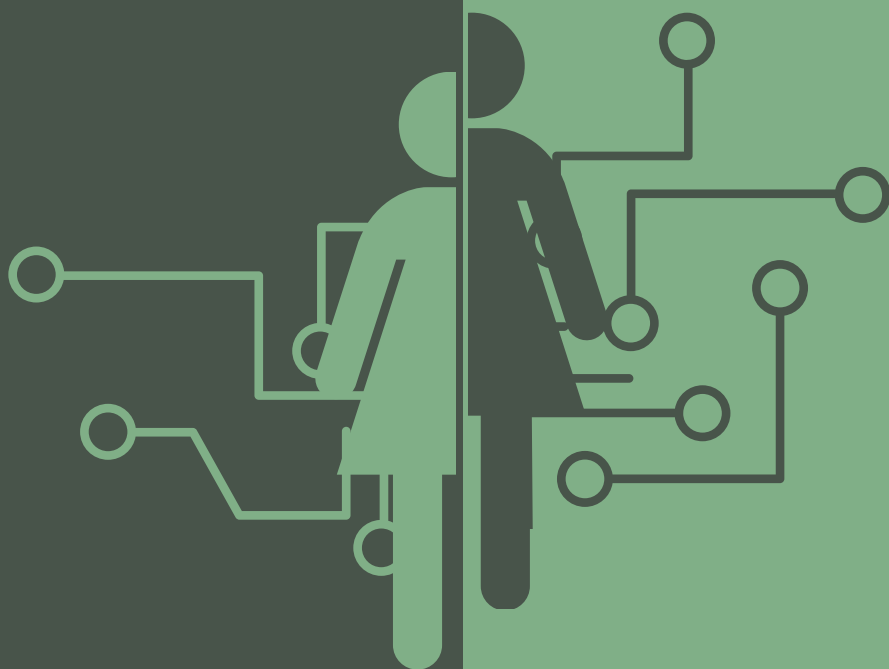


# BREAKING BARRIERS

Celebrating Women and Diversity in Data Science



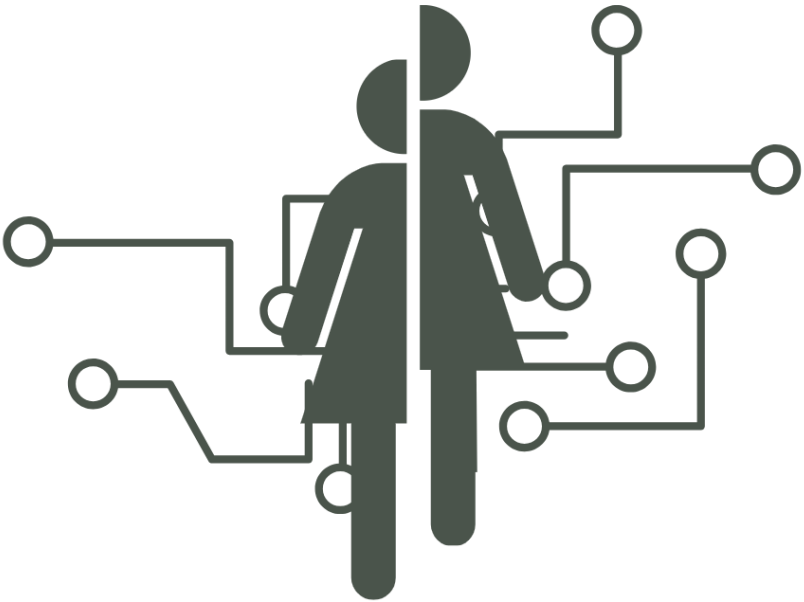
Zeyneb N. Kaya  
Shivani Mudhol

# Breaking Barriers

Celebrating Women and Diversity

in Data Science

Zeyneb N. Kaya • Shivani Mudhol



Copyright © 2023 Zeyneb Kaya & Shivani Mudhol

All rights reserved.

ISBN: 9798860281417

## Dedication

*To the unwavering pursuit of equality, equity, diversity,  
and excellence in data science.*

*To the trailblazers featured in this book, for inspiring  
us and the world.*



# Contents

Foreword	1
<b>1</b> Introduction to Data Science	4
What is Data Science?	
<b>2</b> The Data Odysseys	11
Dorottya (Dora) Demszky	
Dr. Letetia Addison	
Shira Wein	
Arti Tangri	
Emily Gabrowski	
Vandana Srivastava	
Jennifer Andrea Castañeda López	
Grishma Jena	
Conclusion	63



# Foreword

In the rapidly evolving world of data science, the vision of the next generation of leaders will guide the path of advancements in technology and society. Recognizing these changemakers will bring brilliance, tenacity, and groundbreaking contributions into the area to shape a better future. These minds are everywhere and may be on paths that look very different from one another. In this book, we explore the stories of exceptional women who have excelled in data science. From diverse backgrounds and across a multitude of industries, these women have harnessed the power of data to unravel mysteries, drive innovation, and shape the world we live in.

For the youth, these women further serve a greater role. They say one cannot dream of an unfamiliar face, someone they have never met— and with the disparities in the field of data science, properly representing data scientists can empower dreams. Through their extraordinary achievements, they challenge conventional norms, break barriers, and inspire generations to come.

With the increasing prevalence and growth of data, and artificial intelligence in our daily lives, the contributions of



diverse perspectives are central to the progression of technology and the adaptation in a fast-changing world. Through stories of success representing the broad range of data science, the possibilities become tangible and real. The capabilities of generative AI have pushed the limits of creation and possibility— and yet, they are built on the flawed biases of today’s society. These stories are not generated; they are real stories that challenge these biases, roles, and norms, and bring human connection and experience. We learn and teach through the dreams, challenges, and impact of real people. And through them, we can expand our views of who we become, regardless of our identity or interests.

In the coming sections, we follow the journeys of women of diverse backgrounds and fields making an impact in data science. Their stories inspire a grand vision of possibilities. Through the valuable knowledge their experience brings forth, we have embedded a series of “Mini-Lessons” in various areas of data science and general tips for success to supplement learnings and provide brief, educative sections that provide relevant background and a taste of any intriguing future pursuits.

Join us as we celebrate their accomplishments, embrace their unique perspectives, and witness the transformative impact of their work. Together, we embark on an exploration of the women who are redefining what it means to be a data scientist and reshaping the future of this remarkable field. And,

in this process, we encourage our readers to explore, read, and find others who use data as a tool to change the world.

We regard this the start of a long journey in which we will continue to collect and share the inspiring stories of pioneers and heroes who have forged a brighter future for society and themselves via data science.

# **Part 1**

## *Introduction to Data Science*

## What is Data Science?

In the digital age, data has emerged as the lifeblood of our interconnected world. Every click, transaction, and sensor reading generates a vast amount of information that holds the potential to transform industries, drive innovation, and solve complex problems. Data science, a dynamic and interdisciplinary field, has emerged as the key to unlocking the power of information. At its core, data science is the art and science of extracting knowledge and insights from data, guiding decision-making, and steering us toward a data-driven future.

Data science is a multifaceted discipline that combines elements from statistics, computer science, mathematics, and domain expertise to make sense of large and complex datasets. It involves a systematic and iterative process of collecting, cleaning, analyzing, and interpreting data to derive actionable insights and patterns. Data scientists act as both explorers and detectives, using their expertise to mine valuable information from the sea of raw data. They need to work with a variety of different departments and people in any organization in order to generate insights from data.



*'Breaking Barriers: Women and Diversity in Data Science'* shines a spotlight on remarkable women data experts. Their stories highlight the importance of determination, hard work, and closing the gender gap in the interdisciplinary field of data science.

