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KEMAL GUNAY

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EDUCATION

PhD Communication Science, Institute of Social Sciences, Istanbul University 2018 — 2022

Thesis: "[Climate Change Communication and Public Relations: Comparison of Ministries and NGOs' Public Relations Activities on Twitter](#)" - Examined textual data with rule-based and unsupervised machine learning algorithms

Master Corporate Communications, Institute of Social Sciences, Istanbul University 2015 — 2018

Thesis: "Content-based communication in social media: A research on universities"

Bachelor Public Relations and Publicity, BA, Communication Faculty, Istanbul University 2003 — 2007

ACADEMIC AND WORK EXPERIENCE

Bahcesehir University, New Media, Dr. Lecturer, Istanbul 2024 — 2025

- Taught foundational Python programming, including loops, functions, and variables.
- Covered essential Python libraries like **Pandas** and **NumPy** for data manipulation and analysis.
- Guided students in visualizing data trends and patterns with **Matplotlib** and **Seaborn**.
- Equipped students with foundational skills to analyze, interpret, and draw meaningful insights from data.

Kultur University, Digital Game Design, Dr. Lecturer, Istanbul 2024 — 2025

- Taught foundational Python programming, including loops, functions, and variables, tailored for game development.
- Provided hands-on experience with **Pygame** for 2D game development, focusing on graphics, animation, and sound integration.
- Guided students to create interactive games, equipping them with the skills to bring game ideas to life using Python.

University of Trento, [Department of Sociology and Social Research](#), Postdoc Data Scientist, Trento 2023 — 2024

- Application: Python & R, data manipulation, data visualization, statistical tests.
- Collecting and managing large databases from major social media platforms; using quantitative analysis methods and techniques; specifically analyzing data using techniques from computational linguistics (NLP), network science (social and/or semantic), machine learning.
- [CCINDLE](#) aims to enhance trust in democracy and to re-invigorate engagement with democratic institutions and values in Europe (**7 Countries**). It does so by co-creating solutions to the crisis of democracy, by designing and implementing strategies, which counter opposition to equality and democracy and by supporting citizens and activists working in this field.

Istanbul Aydin University, New Media and Communication, Dr. Lecturer, Istanbul 2023

- New Media Research Methods: I teach core courses in the social sciences: research methods and statistics.
- Theory: Statistical thinking models, data literacy: Frequency distribution, Measures of Central Tendency, Measures of Dispersion, Introduction to Bivariate Relationships/Hypothesis-testing, Crosstabs/Contingency Table Analysis
- Application: Python basics, data manipulation, data visualization, statistical tests
- Digital Advertising: Google AdWords, Search Console, and Analytics

Istanbul University, Communication Faculty, New Media Researcher (Scholar), Istanbul 2019 — 2022

- Field of Study: Digital Media, Environmental Communication, Data Science, Political Discourse
- Tools: Python, R, SPSS
- Analysis Methods: Text mining & NLP; Topic Modelling (LDA, STM), Social Network Analysis, Text Clustering
- Organizing events such as seminars, conferences, and workshops.

Data Science & ML School, Bootcamp Participant, Istanbul 2021 — 2022

- Hands-on-experience via projects; CRM Analytics; Recommendation Systems; Measurement, Regression, Classification and Time Series Problems; NLP, MS SQL, Big Data and Production Level Data Science.

Istanbul Gelisim University, Communication Faculty, Research Assistant, Istanbul 2018 — 2019

- Field of Study: Digital Media and Communication Sciences, NLP & Text Mining, Data Visualization
- Academic research through Python, RStudio, SPSS, NVivo Software
- Organizing events such as seminars, conferences, and workshops
- Corporate website management
- Performing PR activities such as news, interviews, press releases.

TEACHING

New Media Research Methods – Python Tutorial, Istanbul Aydin University 2023

- I taught Python core courses in the social science: digital research methods and statistics.

Digital Advertising: Google AdWords, Search Console, and Analytics, Istanbul Aydin University 2023

- I provided undergraduate-level courses on Digital Marketing and Analytics, imparting knowledge to students on current digital marketing strategies and analytical methods. I equipped students with skills in planning and managing digital marketing campaigns using Google AdWords, Search Console, and Analytics.

PySpark ML Bank Customer Churn Prediction Project, Miuul 2021

- A workshop where I explained Spark installation and functions. [GitHub](#)

Teacher Bachelor course “Visualization in R”, Gelisim University 2019

- Based on material by Garrett Grolemund, Hadley Wickham: [R For Data Science](#)

SKILLS

Languages	Turkish (native), English (fluent)
Statistical Software	R, SPSS
Programming	Python and JavaScript (data retrieval, text analysis and NLP, building web applications)
Databases	SQL, Spark
Markup languages	LaTeX, HTML, CSS
System administration	Linux, Docker, Apache Kafka, cloud computing, virtual machines, AWS E2C, S3

AWARDS & FUNDING

EU Cooperation in Science & Tecnology – OPINION NETWORK 2025

- BuilThe Tools working group will address the limited scope and accessibility of most existing computational tools for the analysis of opinionated text. (5000 €)

University of Trento – Research Fellowship Holder 2023-2024

- I worked as a postdoc data scientist in Sociology and Social Research Department. (29,000 €)

DATA SCIENCE & MACHINE LEARNING PROJECTS

Constructing Knowledge Graphs From Unstructured Text with OpenAI 2023

- Building knowledge graphs from unstructured text is an issue of great interest that receives little research. This blog article, it was described how to build a knowledge network in Neo4j using the LangChain framework and OpenAI functions.

Geolocation Algorithm | From Text to Location 2022

- I was required to create an algorithm that takes as input a pdf file corresponding to a research publication and outputs a list of all geographical locations mentioned in the publication. For each geographical location, the algorithm will have to additionally identify the country that the location belongs to and return a latitude- longitude pair corresponding to the centroid of the respective country. ([GitHub](#))

Dialogic Communication Principles – Auto Content Analysis 2022

- Rule-based filters were made from the data obtained from the Twitter application and new variables were revealed. The approach put forward in the study makes it possible to conduct content analysis effectively for environments with fast data flows such as Twitter.

Social Network Analysis - Community Detection R 2021

- Social network analysis (SNA) is the process of investigating social structures using networks and graph theory. It characterizes networked structures in terms of nodes (individual actors, people, or things within the network) and the ties, edges, or links (relationships or interactions) that connect them.

Comprehensive Guide to Build Recommendation Engine 2021

- In this notebook, It was explained three types of recommender systems: (1) Association rule learning (ARL), (2) content-based, and (3) collaborative filtering approaches. It will be explained how to build a recommender system with these three methods.

Please Visit My [Website](#), [GitHub](#) or [Kaggle](#) for More Projects

EXTERNAL ACTIVITIES & SERVICE TO PROFESSION

Other:

- Blogpost: [One-Way ANOVA Test with RStudio](#)
- Blogpost: [Getting Started with Image Preprocessing in R](#)
- Blogpost: [Spotify User Profile Analysis With Spotifyr — RStudio](#)
- Blogpost: [Customer Segmentation: The Key to Finding The Right Customers](#)
- Blogpost: [Python Comprehensions For Beginners](#)
- Blogpost: [Handling Multiple Languages with Accents in Python](#)

PEER-REVIEWED PUBLICATIONS

- Gunay, K.**, Gucdemir, Y. (2022). [Topic Modeling Analysis of NGO's Twitter Postings Between 2020-2021 in Turkey Within The Context of Climate Change Communication](#)
- Mengu, S., Mengü, M., **Gunay, K.** (2021). [Value-based communication during COVID-19 pandemic: a study on the twitter messages of Turkish Ministry of Health](#)
- Guçdemir, Y., Mengü, S., **Gunay, K.**, (2020). [An Investigation of Candidate Leaders' Tweet Campaigns Prior to the Istanbul Metropolitan Municipal Elections Using Big Data Text Mining](#)

UNDER REVIEW PUBLICATIONS

- Pavan, E., **Gunay, K.** (2025). Digital Methods and Fields: Feminist Perspectives
- Gunay, K.**, Guçdemir, Y. (2025). Dialogic Principles for Public Engagement in Climate Change Communication: A Comparative Analysis of NGOs and Ministries
- Gunay, K.**, Linguistic Approaches in Political Communication and Voter Engagement on YouTube: 2020 US Election
- Gunay, K.**, Subjects And Trends on Twitter in The Context Of Sustainability Discussions in Turkey From 2013 to 2023

WORK IN PROGRESS

- Gunay, K.**, Sustainability networks on Twitter: Analyzing climate change actors' interactions in the sustainability debate (Media, Politicians, Private Sector, Universities, NGO)
- Gunay, K.**, Tirşer Erbaşyal. Turkish Politics Linguistic Approaches
- Gunay, K.**, Uçler, N. Kill 'Em All or Not: Stray Animals Law Debates on Instagram and YouTube

BOOK CHAPTERS, REPORTS AND PRESENTATIONS

- Gunay, K. "Atlas of Feminist Responses to Counteract Anti-Democracy and Anti-Gender Forces in Europe", 2023 (Report)
- Gunay, K.**, "Subjects and Trends on Twitter in the Context of Sustainability Discussions in Turkey from 2013 to 2023", [Computational Social Science: TCSS 2023 Understanding Society with Data, Koc University](#), 13,14 April 2023
- Gunay, K.**, "[Climate Change Communication and Public Relations: Comparison of Ministries and NGOs' Public Relations Activities on Twitter](#)", (bookdown format), 2022 (E-book)
- Mengu, S., Mengü, M., **Gunay, K.** (2021). [19th Annual International Conference on Communication and Mass Media](#), 10-11 May 2021, Athens, Greece (Conference)
- Guçdemir, Y., **Gunay, K.**, (2021) [Is The Internet Of Things Transforming A Surveillance Tool?](#) Istanbul University Press (Book part)
- Gunay, K.** Guçdemir, Y., "Topics and Trends on Twitter in the Context of Corporate Social Responsibility and Sustainability Discourses", [CTC 2021 3rd Communication and Technology Congress](#) 12-14 April 2021, Istanbul (Conference)

REFERENCES

Istanbul University, Communication Faculty, Istanbul

- [Prof. Yesim Gucdemir](#), Department of Public Relations, +905324032507, gucdemir@istanbul.edu.tr

University of Trento, Department of Sociology, Italy

- [Associate Prof. Elena Pavan](#), Department of Sociology and Social Research, +393285692124, elena.pavan@unitn.it

Akdeniz University, Communication Faculty, Antalya

- [Prof. Secil Deren Van Het Hof](#), Faculty Dean, +905058185905, sderen@akdeniz.edu.tr

DATA SCIENCE PROJECTS LINKS (GITHUB & KAGGLE)

Natural Language Processing - NLP

1. [LLM OpenAI NEO4J Graph From Text](#)
2. [Geolocation Algorithm | From Text to Location](#)
3. [Comprehensive Guide to Build Recommendation Engine](#)
4. [Quora-TopicModeling-scikit-learn-LDA](#)
5. [Non-negative Matrix Factorization \(NMF\)](#)
6. [NLP-Amazon-Reviews Sentiment Analysis](#)
7. [Fake News Classifier LSTM](#)
8. [Multi Class Text Classification with LSTM](#)
9. [NLP – Text Mining Codes](#)
10. [Content-Based Filtering | Recommender System](#)
11. [LDA Topic Modeling - Bill Gates Tweets](#)
12. [CLTV - Customer Lifetime Value Method](#)
13. [Whatsapp Conversation Analysis with R](#)
14. [Mustafa Kemal Ataturk: Nutuk | Book Analysis](#) – R
15. [Advanced NLP with SpaCy](#)
16. [Social Network Analysis – Witcher Books](#)

BUSINESS INTELLIGENCE

17. [RFM Analysis | Recency, Frequency, Monetary](#)
18. [Customer Relationship Management | CRM Analytics](#)
19. [PySpark ML Churn Analysis](#)
20. [A / B Test User Experience Research](#)
21. [Demand Forecasting - 3 Months Sales Prediction](#)
22. [Salary Prediction ML Pipeline Main Function](#)
23. [Association Rule Learning ARL - Apriori Shopping](#)
24. [Rule Based Classification](#)
25. [Titanic EDA - Exploratory Data Analysis](#)
26. [Rating-Products-Sorting-Reviews-Amazon](#)
27. [Feature-Engineering](#)
28. [Time Series- AirPassengers](#) – R

R PROGRAMMING

29. [Deep Neural Networks with Tensorflow & Keras](#) - R
30. [Principal Component Analysis \(PCA\) - Iris Dataset](#) - R
31. [Social Network Analysis - Community Detection R](#)
32. [Multinomial Logistic Regression](#) – R

33. [Getting Started with Image Preprocessing in R](#)
34. [Making Maps with R ggplot2 – R](#)
35. [Spotify User Profile Analysis With Spotifyr — R](#)
36. [One-way ANOVA Variance Analysis - R](#)
37. [Machine-Learning-Methods-R](#)