



Yasin Güray Hatipoğlu

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Gender: Male **Date of birth**: 04/01/1992 **Nationality**: Turkish

ABOUT MYSELF

Chemist, Researcher, Lifelong Learner

WORK EXPERIENCE

[19/02/2024 – Current]

Founder

FIRE ARAŞTIRMA EĞİTİM LTD. ŞTİ.

City: Ankara | **Country**: Turkey

- Conducting scientific research in fundamental and interdisciplinary science fields and enhancing other researchers' work <https://fire-ae.github.io/research.html>
- Training graduate students and researchers to improve their research career, especially according to the European Competence Framework for Researchers (ResearchComp - Araştırma Yetisi)
- Training programs on Remote Sensing: <https://fire-ae.github.io/training.html>
- Editor-in-Chief for the weekly scientific research bulletin *Science Ascend* (ISSN: 3062-0090) <https://fire-ae.github.io/ascend.html>

[03/03/2024 – 05/09/2024]

Non-key Modeller Expert

NFB Mühendislik ve Müşavirlik A.Ş.

City: Ankara | **Country**: Turkey

- Data cleaning and preparation, GIS tasks, model topography editing
- AQUATOOL+ SIMGES and GESCAL modeling for 2 River Basin Management Plan of "TECHNICAL ASSISTANCE ON PREPARATION OF RIVER BASIN MANAGEMENT PLANS FOR SIX BASINS PROJECT".

[03/11/2023 – 28/03/2024]

Project Assistant

Ministry of Environment, Urbanization and Climate Change

City: Ankara | **Country**: Turkey

-Project Assistant, administrative assistant works

-Preparation of National Implementation Plan for Stockholm Convention, especially for brominated flame retardants, calculating the inventory by guidelines, import/export data, and waste estimation.

[11/07/2023 – 25/10/2023]

Non-key Junior Expert

DAI

City: Ankara | **Country**: Turkey

TECHNICAL ASSISTANCE ON PREPARATION OF RIVER BASIN MANAGEMENT PLANS FOR SIX BASINS PROJECT



- Analysis, presentation, and reporting of Priority Pollutants and Specific Substances status of receiving environments and wastewater influent and effluent samples from industries in Türkiye
- Assisting in technical team's various issues with coding, office software, and presentation skills

[20/02/2022 – 15/09/2022]

Project Expert

FarmLabs Agriculture Technologies and R&D Inc.

City: Ankara | **Country:** Turkey

EU-Horizon project proposal preparations and writing intermediate progress reports

[31/08/2021 – 30/11/2021]

Project manager

2U1K Engineering and Consultancy Inc.

City: Ankara | **Country:** Turkey

Ensuring the submission of reports (Environmental and Social Impact Assessment, Environmental and Social Due Diligence) in compliance with national and international standards

[30/04/2021 – 13/07/2021]

Environmental and GIS Specialist

GEM Sustainability Services and Consultancy

City: Ankara | **Country:** Turkey

Data analyst, GIS works (QGIS), reporting, presenting, field works, survey data process

[29/02/2020 – 09/10/2020]

Short-term Expert

UNIDO

City: Ankara | **Country:** Turkey

POPs Legacy Elimination and POPs Release Reduction Project (name of the project)

//Creating surveys for industry, collecting surveys and analyzing and reporting results

[28/02/2019 – 30/09/2020]

Project Assistant

Middle East Technical University Department of Geodetic and Geographic Information Technologies

City: Ankara | **Country:** Turkey

Constructing Integrated Ecosystem Modeling Based Decision Support System for the Management of Manyas Lake Basin (name of the project)

//Remote sensing methods to manage Lake Manyas better, fieldworks, good contacts with many locals at the first instance

[30/09/2016 – 28/02/2019]

Project Assistant

METU Environmental Eng. & Ministry of Environment and Urbanization

City: Ankara | **Country:** Turkey

Preparation of Sludge Management Plan and Action Plan in Turkey (name of the project)

//Teamwork, statistical analysis with big survey data, collaboration with ministry

[31/08/2015 – 31/08/2017]

Project Assistant

Middle East Technical University Department of Environmental Engineering - TUBITAK

City: Ankara | **Country:** Turkey



Analytical sediment and soil sample preparation, organic solid phase extraction for POPs analyses (PBDEs, PCBs, HBCD) in GC-ECD and GC-MS.

Field work regarding background passive air sampling for several PBT chemicals.

[30/06/2015 – 31/07/2015]

Mandatory Internship

Middle East Technical University Central Laboratory

City: Ankara | **Country:** Turkey

Theoretical and practical training on several laboratory methods:

IR, Polymer, NMR, Zeta potential, BET, XRD, XPS, Several types of MS, Rock sample preparation for stable isotope analysis in clean room, SEM, STM, EDX

[30/06/2014 – 30/11/2014]

Undergraduate Project Assistant

Middle East Technical University Department of Environmental Engineering

City: Ankara | **Country:** Turkey

Analysis routines of passive air samples with UV-VIS, GC-FID methods.

Training newcomers.

Practical method development

EDUCATION AND TRAINING

[02/10/2018 – 31/10/2022]

Philosophy of Doctorate - Earth System Science (terminated)

Middle East Technical University <https://metu.edu.tr>

Address: Üniversiteler Mahallesi Dumlupınar Bulvarı Çankaya, 06800 , Ankara, Turkey |

Field(s) of study: Earth System Science | **Final grade:** Terminated/Incomplete Ph.D. |

National classification: Ph.D | **Type of credits:** ECTS | **Number of credits:** 240 | **Thesis:** River nitrogen pollution source determination

- Satellite Remote Sensing
- Applied Statistics
- Machine Learning

Unfortunately, I terminated my Ph.D. before its end, owing to financial issues and communication mismatch between me and my advisor.

[17/09/2016 – 02/09/2018]

Master of Science - Earth System Science

Middle East Technical University <https://metu.edu.tr>

Address: Üniversiteler Mahallesi Dumlupınar Bulvarı, Çankaya, 06800, Ankara, Turkey |

[30/07/2017 – 06/08/2017]

Short-term exchange study stay - Faculty of Science

Masarykova Univerzita - RECETOX <https://www.recetox.muni.cz/en>

Address: Zerotinovo nam. 9, 601 77 Brno, Brno, Czechia |

[02/09/2009 – 19/06/2016]

Bachelor of Science - Chemistry (with Honors)

Middle East Technical University <https://metu.edu.tr>

Address: Üniversiteler Mahallesi Dumlupınar Bulvarı, Çankaya, ANKARA, 06800, Ankara, Turkey |

LANGUAGE SKILLS

Mother tongue(s): Turkish



Other language(s):

English

LISTENING C1 READING C2 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Russian

LISTENING A2 READING A2 WRITING A2

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

French

LISTENING A1 READING A2 WRITING A1

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

DIGITAL SKILLS

My Digital Skills

Microsoft Word | Microsoft Excel | R | Good experience in spatial analysis (QGIS) | Python 3 | pdfLaTeX | SDL Trados

VOLUNTEERING

[04/04/2022 – 01/09/2022]

Volunteer Translator European Southern Observatory

An example:

[VLT | ESO Türkiye](#)

NETWORKS & MEMBERSHIPS

[01/08/2019 – Current]

Member Ecological Forecasting Initiative

Organizing webinars and seminars, working in Translation & Actionable Science working group. An example of our writing work:

[The Integration of Ecological Forecasts Into Environmental Policy | Ecological Forecasting Initiative \(ecoforecast.org\)](#)

[01/12/2021 – Current]

Ambassador RemTECH Europe

Sharing social media posts and announcements of RemTECH Europe. Attending meetings and contribute to the relevant translation & chapter writing work.

[29/06/2022 – Current]

Member Europlanet Society

PUBLICATIONS

[2024]

[Value Sliced and Derivative Images for Source Mask in JWST MIRI Photometry](#)

Reference: Hatipoğlu, G. (2024). arXiv

One of many ways for the James-Webb Space Telescope (JWST) to capture astronomical signals is the Mid-Infrared Instrument (MIRI) Imaging mode. To make this data ready for analysis, the JWST standard reduction pipeline has three stages and many mandatory and optional steps to produce analysis-ready data. At the end of stage 3, there is a resampled 2-dimensional image for each band/wavelength, an estimated source catalog, and a source mask (segmentation image) locating these sources. This study focuses on enhancing this source mask part so that it can detect more point sources, previously



cataloged after older missions, without spuriously "detecting" false positives. Combined use of the fraction of a resampled image and a derivative image seemed to improve the capability to detect unWISE catalog-located sources better than original segmentation images in 7 different real cases with the MIRI F770W filter. A few approaches are recommended to make better use of these value-sliced and derivative images.

Link: <https://arxiv.org/pdf/2401.15779>

[2023] [**JWST MIRI Imaging Data Post-Processing Preliminary Study with Fourier Transformation to uncover potentially celestial-origin signals**](#)

Reference: Hatipoğlu, G. (2023), arXiv:2304.00728

This manuscript reports a part of a dedicated study aiming to disentangle sources of signals from James Webb Space Telescope (JWST) Mid-Infrared Instrument (MIRI) imaging mode. An instrumental introduction and characteristics section is present regarding MIRI. Later, a Fast Fourier Transformation-based filtering approach and its results will be discussed.

Link: <https://arxiv.org/pdf/2304.00728>

[2023] [**PCA-based Data Reduction and Signal Separation Techniques for James-Webb Space Telescope Data Processing**](#)

Reference: Hatipoğlu, G. (2023). arXiv:2301.00415

Principal Component Analysis (PCA)-based techniques can separate data into different uncorrelated components and facilitate the statistical analysis as a pre-processing step. Independent Component Analysis (ICA) can separate statistically independent signal sources through a non-parametric and iterative algorithm. Non-negative matrix factorization is another PCA-similar approach to categorizing dimensions in physically-interpretable groups. Singular spectrum analysis (SSA) is a time-series-related PCA-like algorithm. After an introduction and a literature review on processing JWST data from the Near-Infrared Camera (NIRCam) and Mid-Infrared Instrument (MIRI), potential parts to intervene in the James Webb Space Telescope imaging data reduction pipeline will be discussed.

Link: <https://arxiv.org/pdf/2301.00415>

[2022] [**Utility of PCA and Other Data Transformation Techniques in Exoplanet Research**](#)

Reference: Hatipoğlu, G. (2022). arXiv:2211.14683

This paper focuses on the utility of various data transformation techniques, which might be under the principal component analysis (PCA) category, on exoplanet research. The first section introduces the methodological background of PCA and related techniques. The second section reviews the studies which utilized these techniques in the exoplanet research field and compiles the focuses in the literature under different items in the overview, with future research direction recommendations at the end.

Link: <https://arxiv.org/pdf/2211.14683>

[2022] [**On the Use of Dimension Reduction or Signal Separation Methods for Nitrogen River Pollution Source Identification**](#)

Reference: Hatipoğlu, G. (2022). arXiv:2204.13182

Identification of the current and expected future pollution sources to rivers is crucial for sound environmental management. For this purpose numerous approaches were



proposed that can be clustered under physical based models, stable isotope analysis and mixing methods, mass balance methods, time series analysis, land cover analysis, and spatial statistics. Another extremely common method is Principal Component Analysis, as well as its modifications, such as Absolute Principal Component Score. they have been applied to the source identification problems for nitrogen entry to rivers. This manuscript is checking whether PCA can really be a powerful method to uncover nitrogen pollution sources considering its theoretical background and assumptions. Moreover, slightly similar techniques, Independent Component Analysis and Factor Analysis will also be considered.

Link: <https://arxiv.org/pdf/2204.13182>

[2019] **[Modeling irrigation with nitrate contaminated groundwater](#)**

Reference: Hatipoğlu, G., Kurt, Z. (2020). PAJES, 26 (3), 468-480.

An alternative method to treat the nitrate-contaminated groundwater under the agricultural fields while providing economic benefit is called pump and fertilize. Pump and fertilize, while removing the nitrate in the groundwater, can reduce nitrate and pesticide requirement. However, up to date, there are no studies evaluating the effect of this application under different soil/climate conditions. In order to apply this technology in the field and to determine its effect, a feasibility study needs to be performed. Therefore, we constructed unsaturated zone groundwater models via HYDRUS 1D for one-hectare corn field in prevalent soils and under Eskişehir, Adana, Şanlıurfa, Düzce climates in Turkey. Our results indicated that even groundwater with 50 mg/L nitrate contamination could provide economic benefit to the agriculture especially where climates and soil types are similar to Şanlıurfa. In this climate using pump and fertilize technique saves 97 kg N/year in a 1-hectare farm. The technique was especially effective for fluvisol, vertisol soils as nitrate leaching are very low, and for cambisol soils since very high nitrogen use efficiency was seen for the climates present in Turkey. Our

results indicated that in general the pump and treat efficiency is less effective in wet and cold climates, like in Düzce. As a general result of our study, we concluded that dry and warm climates with relatively permeable soils are more promising for the pump and fertilize

application.

Link: https://jag.journalagent.com/z4/download_fulltext.asp?pdire=pajes&plng=tur&un=PAJES-38963

HOBBIES AND INTERESTS

Argentine Tango

I started Argentine Tango in 2017 and with changing frequencies I have been doing it since then.

Link: <https://youtu.be/WFa2llgHIYY>

Visiting Abstract Painting Exhibitions

I have been visiting abstract painting exhibitions since 2009. They:

- Let me experience and acquainted with completely new things
- Let me see my inner world, how I feel, how my subconscious works



Short story writer

This is not only relieving me, but also good for empathy and creativity.

Link: https://www.amazon.ca/stores/Yasin-Güray-Hatipođlu/author/B0D2WF4JNX?ref=ap_rdr&isDramIntegrated=true&shoppingPortalEnabled=true