Yasin Güray Hatipo lu

Date of birth: 04/01/1992 | Nationality: Turkish | Phone: (+90) 5070252333 (Mobile) | Email address: gurayhatipoglu@gmail.com | Website: http://fire-ae.github.io | LinkedIn: https://www.linkedin.com/in/ghatipoglu/ | Address: Barbaros Mah. Esat Cad. 78/K, Çankaya Ankara, 06000, Ankara, Turkey (Home), Y1ld1zevler Çankaya Ankara, 06550, Ankara, Turkey (Work)

About me

Chemist, Researcher, Lifelong Learner

Work experience

Founder | FIRE ARA^TIRMA E 0T0|M 19/12/2024 - Current | Ankara, 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 - Ara_t1rma 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

Non-key Modeller Expert | NFB Mühendislik ve Mü 03/09/2024 - 05/09/2024 | Ankara, 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".

Project Assistant | Ministry of Environment, Urbanization and Climate Change | 03/11/2023 - 28/03/2024 | Ankara, Turkey

-Project Assistant, administrativev 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.

Non-key Junior Expert | DAI | 11/07/2023 - 25/10/2023 | Ankara, 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

Project Expert | FarmLabs Agriculture Technologies and R&D Inc. | 20/02/2022 - 15/09/2022 | Ankara, Turkey

EU-Horizon project proposal preparations and writing intermediate progress reports

Project manager | 2U1K Engineering and Consultancy Inc. | 31/08/2021 - 30/11/2021 | Ankara, Turkey

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

Environmental and GIS Specialist | GEM Sustainability Services and Consultancy | 30/04/2021 - 13/07/2021 | Ankara, Turkey

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

Short-term Expert | UNIDO | 29/02/2020 - 09/10/2020 | Ankara, Turkey

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

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

Project Assistant | Middle East Technical University Department of Geodetic and Geographic Information Technologies | 28/02/2019 - 30/09/2020 | Ankara, 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

Project Assistant | METU Environmental Eng. & Ministry of Environment and Urbanization | 30/09/2016 - 28/02/2019 | Ankara, 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

Project Assistant | Middle East Technical University Department of Environmental Engineering - TUBITAK | 31/08/2015 - 31/08/2017 | Ankara, 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.

Mandatory Internship | Middle East Technical University Central Laboratory | 30/06/2015 - 31/07/2015 | Ankara, 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

Undergraduate Project Assistant | Middle East Technical University Department of Environmental Engineering | 30/06/2014 - 30/11/2014 | Ankara, Turkey

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

Training newcomers.

Practical method development

Education & Training

Philosophy of Doctorate - Earth System Science (terminated) | Middle East Technical University | 02/10/2018 - 31/10/2022 | Ankara, Turkey

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.

Field 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 | **Address:** Üniversiteler Mahallesi Dumlup1nar B Çankaya06800

Master of Science - Earth System Science | Middle East Technical University | 17/09/2016 - 02/09/2018 | Ankara, Turkey

Address: Üniversiteler Mahallesi Dumlup1nar Bulvar1 Çankaya 06800

Short-term exchange study stay - Faculty of Science | Masarykova Univerzita - RECETOX | 30/07/2017 - 06/08/2017 | Brno, Czechia

Address: Zerotinovo nam. 9, 601 77 Brno

Bachelor of Science - Chemistry (with Honors) | Middle East Technical University | 02/09/2009 - 19/06/2016 | Ankara, Turkey

Address: Üniversiteler Mahallesi Dumlup1nar Bulvar1, Çankaya, ANKARA06800

Language Skills

Mother tongue(s): **Turkish**

	Understanding		Speaking		Writing
	Listening	Reading	Spoken production	Spoken interaction	
English	C1	C2	C1	C1	C1
Russian	A2	A2	A1	A1	A2
French	A1	A2	A1	A1	A1

Skills

Microsoft Word | Microsoft Excel | R | Good experience in spatial analysis (QGIS) | Python 3 | pdfLaTeX | SDL Trados | Adobe (Adobe Photoshop Adobe Lightroom Adobe Premiere Adobe Bridge Adobe)

Volunteering

Volunteer Translator | 04/04/2022 - Current | European Southern Observatory

An example:

VLTI | ESO Türkiye

Networks and Memberships

Member | 29/06/2022 - Current | Europlanet Society

Member | 01/08/2019 - Current | 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)

Ambassador | 01/12/2021 - Current | RemTECH Europe

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

Publications

Value Sliced and Derivative Images for Source Mask in JWST MIRI Photometry

2024. Hatipo lu, 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.

https://arxiv.org/abs/2401.15779

https://arxiv.org/pdf/2401.15779

JWST MIRI Imaging Data Post-Processing Preliminary Study with Fourier Transformation to uncover

potentially celestial-origin signals

2023. Hatipo lu, 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.

https://arxiv.org/abs/2304.00728

https://arxiv.org/pdf/2304.00728

PCA-based Data Reduction and Signal Separation Techniques for James-Webb Space Telescope Data Processing

2023. Hatipo lu, 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.

https://arxiv.org/abs/2301.00415

https://arxiv.org/pdf/2301.00415

Utility of PCA and Other Data Transformation Techniques in Exoplanet Research

2022. Hatipo lu, 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.

https://arxiv.org/abs/2211.14683

https://arxiv.org/pdf/2211.14683

On the Use of Dimension Reduction or Signal Separation Methods for Nitrogen River Pollution Source Identification

2022. Hatipo lu, 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.

https://arxiv.org/abs/2204.13182

https://arxiv.org/pdf/2204.13182

Modeling irrigation with nitrate contaminated groundwater

2019. Hat1 po lu, 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 Eski_e 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 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.

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

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Hobbies and Interests

Argentine Tango

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

https://youtu.be/WFa2lIgHIYY

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.

https://www.amazon.ca/stores/Yasin-G%C3%BCray-Hatipo%C4%9Flu/author/B0D2WF4JNX?ref=ap_rdr&isDramIntegrated=true&shoppingPortalEnabled=true

Conferences & Seminars

[Inclusion Impact in MW-GAIA] Hybrid MW-Gaia COST action school | 03/07/2023 - 05/07/2023 | Vilniaus, Lietuva

http://mao.tfai.vu.lt/mwimpact/

13th Summer School on Toxic Compounds in the Environment 2017 | 26/06/2017 - 30/06/2017 | Brno, Czechia

https://www.recetox.muni.cz/rc/projects-and-main-events/training-of-experts

EPSC-DPS 2025 | 07/09/2025 - 12/09/2025 | Helsinki - Online

EPSC-DPS Joint Meeting 2025 Finlandia Hall Helsinki, Finland, 7–12 September 2025

https://www.epsc-dps2025.eu