JIN IGARASHI

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Senior software engineer specializing in GIS, information technology, water, and sanitation fields with over 13 years of work experience in Japan and Eastern Africa. Holds an MSc (Eng) in Water, Sanitation, and Health Engineering degree with distinction from the University of Leeds, United Kingdom.

During my dissertation, I researched the full lifecycle costs of urban sanitation systems under the CACTUS (Climate and Costs in Urban Sanitation) project funded by the Bill and Melinda Gates Foundation. I conducted a case study for Narok town, Kenya, to estimate the cost of the urban sanitation system over the sanitation value chain. Currently pursuing an MSc in Computer Science Artificial Intelligence at the University of York since January 2024 as a part-time online student.

Began my career developing various GIS applications at Fujitsu in Japan. Subsequently, worked in Eastern Africa (Kenya and Rwanda) on water asset management and Non-Revenue Water (NRW) management as a GIS specialist in Japan International Cooperation Agency (JICA) projects. During this time, I established a sustainable approach to maintaining geospatial applications for managing water assets by developing open-source software on GitHub. I maintain personal partnerships with water utilities in Kenya and Rwanda to support their WASH efforts as a volunteer.

Transitioned back to the software engineering industry after JICA projects, focusing on developing geospatial software in various companies in Japan. Currently employed at UNDP, where I develop new web-based geospatial applications to assist non-geospatial skilled UNDP staff and policymakers in easily visualizing and analyzing spatial datasets.

Passionate about driving innovation in the WASH field due to my background in information technologies and WASH experience.

EXPERIENCE

DECEMBER 2021 – CURRENT

FULL STACK GIS DEVELOPER, UNITED NATIONS DEVELOPMENT PROGRAMME, NEW YORK

Develop GeoHub platform (a part of Data Future Exchange project) in SDG integration team, Bureau for Policy and Programme Support, UNDP and work remotely from the United Kingdom. I worked as a part-time GIS consultant from December 2021 to September 2022 (Individual consultant), and started working in full time from September 2022 to March 2023(IPSA 9 Short term). Currently, I renewed my contract as a full-stack GIS developer (IPSA 9) since August 2023. In UNDP, I am mainly involved in developing GeoHub application, which is new open-source software to provide advanced data visualization, analysis and sharing tools to non-geospatial skilled UNDP staff and policymakers.

Skills: Maplibre, Mapbox, NodeJS (JavaScript), Python, svelte/sveltekit, PostgreSQL/PostGIS, titiler, pg_tileserv, STAC, Azure (AppService, Blob storage, PubSub, Kubernetes, etc).

AUGUST 2021 – MARCH 2022

SOFTWARE ENGINEER, GEOLONIA INC., JAPAN

I part-time work remotely with Geolonia to develop Open Source GIS applications. I was mainly involved in open source software of open reverse geocoding and unit/charites (maplibre stying)

Skills: Maplibre, geocoding, reverse geocoding, Map styling

JUNE 2021 – NOVEMBER 2021

SOFTWARE ENGINEER, OCEAN EYES CO., LTD, JAPAN

Enhanced their existing WebGIS system and developed new features as a freelancer. My first work was to transfer it from Leaflet to Mapbox on Vuejs, then developed various new features on the website. Also, I established CI/CD to manage source code repository easily and sustainably.

Skills: NodeJS (JavaScript), Mapbox, Leaflet, VueJS

OCTOBER 2020 – AUGUST 2021

SOFTWARE ENGINEER, MIERUNE INC., JAPAN

Mainly develop WebGIS systems by using FOSS4G (Free & Open Source Software for Geospatial) as GIS specialist. Also, joined several open source GIS activities. Experience Photon (open source geocoder), Elasticsearch, Django, etc.)

Skills: AWS, Google Cloud, Kubernetes, Geocoding, ElasticSearch, Django, Python, etc.

JANUARY 2020 –SEPTEMBER 2020

SOFTWARE ENGINEER, ONE COMPATH CO., LTD., JAPAN

Developed and operated the one of most popular web map service in Japan which is called "MAPION". I developed and improved their operations of mapping system which is using Mapbox Vectortiles and Mapserver on Amazon Web Service (AWS).

Skills: AWS, Mapbox, PostgreSQL/PostGIS

APRIL 2017 – DECEMBER 2019

CONSULTANT, KOKUSAI KOGYO CO., LTD., JAPAN

Conducted the followings projects funded by Japan International Cooperation Agency (JICA).

- The Project for Strengthening Operation and Maintenance of Rural Water Supply Systems in Rwanda (RWASOM project) (06/2018-12/2019)
- Survey for the Establishment of the Experimental Field for the GNSS System Development in the Kingdom of Thailand (11/2018-11/2019)
- Preparatory Survey for the Project for Strengthening Nzove-Ntora Principal Water Transmission Pipeline in Kigali City, Rwanda" (10/2017-11/2018)

Conducted training workshops for data collection and sharing with FOSS4G applications, then designed & created GIS database and data sharing platform for rural water supply management in RWASOM project. Collaborated with Rwandan colleagues to complete mapping all of water supply systems in the country. The system in Rwanda uses PostGIS, Lizmap/QGIS Server, QGIS Desktop, QField and Garmin GPS.

Skills: geospatial data collection, EPANET, water supply, design/plan water infrastructure, etc.

APRIL 2014 – SEPTEMBER 2016

GIS SPECIALIST, NAROK WATER AND SEWERAGE SERVICES CO., LTD., KENYA (JICA)

Worked as a GIS specialist funded by JICA and conducted the following activities.

- Mapped the entire water distribution network (approximately 300km length of pipeline in Total) in Narok and Ololulung'a town (Trimble GPS, ArcPAD, QGIS).
- Designed and developed GIS database & WebGIS (PostGIS, Mapserver, Leafletjs). The system links to billing system, it helps improve their revenue collections.
- Created the DMAs (District Metered Areas) for analyzing and improving Non-Revenue water management.
- Conducted training to transfer technical knowledge to Kenyan colleagues, then GIS system is continuously being used up to now since it has been developed.
- Consulted GIS work for 7 water services providers (Nyeri water, Kabarnet water, Kapsabet water, Nakuru water, Nakuru rural water, Naivasha water and Mavoko water) in Kenya.

Skills: Data collection for water infrastructure, WebGIS, PostgreSQL/PostGIS, EPANET, etc.

APRIL 2009 – MARCH 2017

SOFTWARE ENGINEER, FUJITSU SOCIAL SCIENCE LABORATORY, LTD., JAPAN

Designed and developed the following systems. Most of the systems are related to GIS. I left the job while I was in Kenya between April 2014 and September 2016, then back to the company.

- the development of HD map for autonomous vehicle (ArcGIS Server, Python, Django REST framework).
- the system of mapping and simulating location of ships' movement in Singapore (Leafletjs).
- Web-GIS system for the Real Property Registration system in Ministry of Justice of Japan (Mapserver, OpenLayers, Oracle).
- An Android application for health care management (Java).
- An area marketing system by using MapInfo.
- Logistics and distribution management system with Dijkstra routing algorism (VB.NET, SQL Server, MS Access).

Skills: VB.NET, JAVA, OpenLayers, Leaflet, MapServer, ArcGIS Server, SQL Server, MS Access, Oracle, etc.

EDUCATION

NOVEMBER 2022

MASTER OF SCIENCE (ENG), UNIVERSITY OF LEEDS, LEEDS, UNITED KINGDOM

Certified MSc (Eng) Water, Sanitation and Health engineering passed with distinction. Studied the full lifecycle costs of urban sanitation systems in Narok town in Kenya as an MSc dissertation.

MARCH 2009

BACHLOR OF ARTS, TOKAI UNIVERSITY, KANAGAWA, JAPAN

Studied history of international relationship between China, Korea and Japan during 16 centuries.

JULY 2007
CHINESE LANGUAGE, SCHOOL OF CHINESE AS A SECOND LANGUAGE, PEKING UNIVERSITY, BEIJING, CHINA
Studied Chinese language and Chinese history for a year.

RECENT TALKS AND PUBLICATIONS

NOVEMBER 2023
Igarashi, J., Evans, B., Sleigh, A., Tarkash, D. N., Kennedy, R., Rosenberg, R., & Zakaria, F. (2023). Does "Low Cost" Urban Sanitation Exist? Lessons from a Global Data Set. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.3c05731

JULY 2023
Presented the following presentations at FOSS4G 2023 Prizren, Kosovo (2023.foss4g.org).
- UNDP's one stop shop for cloud based geospatial data visualisation and analytical tool
- Development of maplibre applications in sveltekit

OCTOBER 2022
Published Shit-flow diagram (SFD) Lite report for Narok town, Kenya at sfd.susana.org. The report shows the latest sanitation situation in the municipality.

AUGUST 2022
Co-presented "Rural water supply mapping by using FOSS4G application in Rwanda" at FOSS4G 2022 Firenze, Italy.

FEBRUARY 2022
Presented about "A case study of Open Source GIS in rural water management in Rwanda" at Webinar for water utilities of West African countries hosted by JICA.

OCTOBER 2021
Presented three talks about use cases of Rwanda and Kenya's GIS activities in FOSS4G 2021 Bues Aires Online (https://2021.foss4g.org).
- "FOSS4G software developments for Water Utilities Management in Eastern Africa by using Vector Tiles"
- "The impact of application of FOSS4G on Non-Revenue Water" (Presenter was Mr. James Njenga, I was backup)
- "An implementation of FOSS4G - QGIS, QField and Vector Tiles for rural water supply management in Rwanda" (Presenter was Mr. Moise Irankunda, I was backup)

FEBRUARY 2021
Joined "Open Education for QGIS" session by Hans van der Kwast (lecturer of IHE Delft Institute) as a panel at QGIS Open Day.

JANUARY 2021
Presented about "A case study of Open Source GIS in rural water management in Rwanda" at Webinar for water utilities of West African countries hosted by JICA.

NOVEMBER 2020
Presented about "Use cases of Vector Tiles implementation for water utilities in Eastern Africa" at FOSS4G Korea 2020 online conference.

OCTOBER 2020
Presented about "A cheap and easy way to utilize GIS for effective management of water utility" at WaQuAc Net (Water Quality Asian Cooperation Network, http://waquac.net/english) Webinar.

SEPTEMBER 2020
Presented about "Vector Tiles implementation for water services providers in Eastern Africa" in FOSS4G Hokkaido.

AUGUST 2019
Presented about use cases of Rwanda and Kenya's GIS activities in FOSS4G 2019 Bucharest (https://2019.foss4g.org).
- URL of Kenya's presentation: https://media.ccc.de/v/bucharest-135-case-study-of-non-revenue-water-management-of-narok-water-in-kenya
- URL of Rwanda's presentation: https://media.ccc.de/v/bucharest-30-case-study-of-data-collection-data-sharing-for-rural-water-supply-management-in-rwanda

QUALIFICATIONS

NOVEMBER 2022
MSc (Eng) Water, Sanitation and Health Engineering (School of Civil Engineering, University of Leeds). Passed with distinction.

APRIL 2022
Designing a Multidimensional Poverty Index (United Nations Development Programme (UNDP) and the Oxford Poverty and Human Development Initiative (OPHI))

NOVEMBER 2021
BSAFE (United Nations Department of Safety and Security)

NOVEMBER 2021
Prevention of sexual exploitation and abuse (PSEA) (UNICEF)

NOVEMBER 2021
Prevention of sexual harassment and abuse of authority (2021 version) (UN & UN agencies)

JUNE 2017
PCM MONITORING EVALUATION (FASID - FOUNDATION FOR ADVANCED STUDIES ON INTERNATIONAL DEVELOPMENT)

MAY 2017
PCM PARTICIPATORY PLANNING (FASID – FOUNDATION FOR ADVANCED STUDIES ON INTERNATIONAL DEVELOPMENT)

NOV 2009
FUNDAMENTAL INFORMATION TECHNOLOGY ENGINEER EXAMINATION (INFORMATION TECHNOLOGY PROMOTION AGENCY, JAPAN)

MAY 2009
INFORMATION TECHNOLOGY PASSPORT EXAMINATION (INFORMATION TECHNOLOGY PROMOTION AGENCY, JAPAN)

LANGUAGES

- English (Fluent, IELTS Overall6.5, CEFR: B2, in March 2021)
- Japanese (Native)
- Chinese (Fluent, HSK Chinese Proficiency Test Grade 9 in April 2009)
- Swahili (Fluent)