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Ermias Andargie Walelgne

Education

2015 – 2021 **Doctor of Science in Networking Technology**, *Aalto University, Finland.*
2011 – 2014 **M.Sc. in Computer Science**, *University of Trento, Italy.*
2005 – 2008 **B.Sc. Degree in Computer Science**, *Hawassa University, Ethiopia.*

Professional Summary

Experienced software professional, data engineer, and machine learning enthusiast. I have a kin interest and hands-on experience in algorithms, software & web development, data science, and machine learning. Through several years of Industry (telecom/content delivery/consulting) and research (European project) experience, I have acquired hands-on experience and the ability to solve real-world problems. I have been applying different algorithms, designing methodologies, implementing tools and models, metrics measuring, and quantifying performance. My professional skills include algorithm design, software development, web development, Cloud automation, CI/CD testing pipelines, data engineering, and machine learning. I am a goal-oriented and good team player who is eager to embrace fresh ideas and challenges.

Professional competency

Skills & Tools.
- Cloud environments & Virtualization: Azure, AWS, GCP, Docker, Kubernetes, Baremetal
- Go, Python, Java, Shell, Javascript, Node, R, JSON, SQL, MongoDB, PostgreSQL
- Machine Learning, Data Science, Scikit-learn, Spark, TensorFlow, API & data technologies
- Mathematics & Statistics Apache Hadoop & MapReduce

Industry Experience.
- Mobile network operators, telecommunications, & technology
- Content delivery/Internet
- Research institutes & Universities

Functional expertise.
- Software development, Cloud computing, Virtualization, and CI/CD
- Data Science development process, Data engineering
- Good technical presentation, Fluent in English

Selected Projects & Work Experience

Mar 2020 – **Experienced Cloud, Storage and Network Developer** , Ericsson Finland , Jorvas, Finland.

Task:
- Design and develop cloud native solutions: networking, baremetal, hosted & local storage
- Developed applications on Kubernetes focused on networking & storage.
- Worked with DevOps team to develop Ericsson Cloud Container Distribution solution
- **Tools**: Kubernetes, Docker, CI/CD (Jenkins), Go, Python, Ansible, Shell, Git, Groovy, Openstack Heat

Nov 2019 - Mar 2020 **Consultant & Data Scientist**, CGI Suomi, Helsinki, Finland.

Task:

- Design and develop individuals' 'flow mode' prediction system
- Collaborated with team members coming from different professional background
- **Tools**: Azure, Jupyter, SQL, Python, JavaScript, Node.js, Shell, C#, docker, git

2014 - 2019 **PhD Researcher & Software Development**, Aalto University, Espoo, Finland.

Projects:

- METRICS - Measurement for Europe: Training & Research for Internet Communications Science (2014 to 2017)
- Netradar - Crowd source based mobile performance measurement platform (2014 to 2019)

Task:

- Mobile network performance analysis, network stability classification model & throughput prediction using machine learning methods.
- Web performance, quality of experience measurement & analysis.
- Processed more that 340M measurement records to understand data usage patterns and behavior of mobile users across countries.
- Developed user clustering & classification model using unsupervised & supervised machine learning approaches. The model to identify mobile users data usage patterns.
- **Tools**: Skit-learn, Pandas, TensorFlow, R, Jupyter, MongoDB, GCP, SQL, Python, Java, JavaScript, Shell, C++, docker, git

2016/2017 **PhD Research Intern**, Elisa Oy, Helsinki, Finland.

Projects and tasks:

- Web flow performance in mobile network
- Analyzed factors affects web browsing performance in mobile networks based on crowd-sourced based measurement data collected from more than 25K subscribers in Finland

2014 **MSC thesis and project work** , Trento University, Trento, Italy.

Projects and tasks:

- Title: Time-Series Similarity Query Answering Using iSAX on MapReduce
- Implemented MapRedExactSearch & K-Nearest Neighbor Search, using Hadoop & Java as the Programming language
- Implementation shorten average execution time of time series query than simple search

2013/2014 **Junior Researcher & Software developer**, Advanced Digital Science Center, Singapore, Singapore.

Projects and tasks:

- Attacks on Genome-wide association study (GWAS) privacy: A Data Mining Approach
- Implemented parts of the attacking algorithms of GWAS (that probabilistically reconstructs people's DNA from publicly available DNA data sample).
- Analysis the test results & write a scientific paper.

Jul - Sep 2007 **Intern & Web developer**, Ethio Telecom, Addis Ababa, Ethiopia.

Projects and tasks:

- Domain Name Registration System
- Developed an Online Domain Name Registration System to Ethiopian Telecom.

Selected Publications

- Ermias Walelgne, Alemnew Asrese, Jukka Manner, Vaibhav Bajpai, Jörg Ott: "Clustering and Predicting the Data Usage Patterns of Geographically Diverse Mobile Users" Elsevier Computer Networks (COMNET), Jan. 2021 [Impact Factor: 3.11]
- Ermias Walelgne, Alemnew Asrese, Jukka Manner, Vaibhav Bajpai, Jörg Ott: "Understanding Data Usage Patterns of Geographically Diverse Mobile Users" IEEE Transactions on Network and

Service Management (TNSM), Nov. 2020 [Impact Factor: 4.682]

- Stefan Neumeier, Ermias Walelgne, Vaibhav Bajpai, Jörg Ott, Christian Facchi: "Measuring the Feasibility of Teleoperated Driving in Mobile Networks." TMA, 2019 [32.3%, 21/65]
- Alemnew Asrese, Ermias Walelgne, Vaibhav Bajpai, Andra Lutu, Özgü Alay, Jörg Ott: "Measuring Web Quality of Experience in Cellular Networks.", PAM, 2019 [26.6%, 20/75]
- Kasper Apajalahti, Ermias Walelgne, J Manner, E Hyvönen: "Correlation-Based Feature Mapping of Crowdsourced LTE Data", *IEEE PIMRC*, 2018 [45.2%, 349/772]
- Ermias Walelgne, Kim Setälä, Vaibhav Bajpai, Stefan Neumeier, Jukka Manner and Jörg Ott: "Factors Affecting Performance of Web Flows in Cellular Networks." *IFIP Networking conference*, 2018 [24.4%, 55/225]
- Ermias Walelgne, Jukka Manner, Vaibhav Bajpai and Jörg Ott: "Analyzing Throughput and Stability in Cellular Networks." *IEEE/IFIP NOMS*, 2018 [32.2%, 56/174]