Alem H. Fitwi

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Summary:

A seasoned Engineer with a wealth of experience in Electrical & Computer Engineering, Computer Networking and Security, Business Intelligence, Data Analytics, Data Science and Machine/Deep Learning. I tend more toward Data Science using Python3/R, Machine Learning and Apache Spark for cluster or parallel computing! I also took a Google Data Analytics Certificate recently. Besides, I am very good at fullstack web development using HTML, CSS, & JavaScript for frontend coding, Python3 for backend coding, & MySQL/ORacleDB/PostgreSQL for database programming & management.

Professional & Project Experience:

- ⊕ **Project Research Assistant (May 2021 - todate):** In this position, I have successfully completed two projects: 1) A social distancing and Crowd Density Estimation, realized using Deep Learning Model, and two algorithms designed for interpersonal distance and area estimation with a single camera. All implemented using Python3 for Technergetics under the supervision of my adviser. 2) A Communication Algorithm for the implementation of Distributed Collaborative Orthogonal Pursuit Matching Thresholding Algorithm (DC-OMP-TA). Tested on more than three distributed machines. The implementation was done using advanced Python3 for the network communication and MATLAB for interfacing the python apps and DC-OMP-TA's MATLAB implementation of the contracting company.

- ⊕ **Graduate Assistant-Data Analytics Specialist (August 2017 - May 2021)**: Doing Business Intelligence (BI), Data Science and analysis on such input datasets as 15-year & semiannually Student Opinion of Teaching (SOOT), Historical and periodical Admission Data, and 25 years research data. Their sizes typically range from 1GB to 5GB. Analysis outputs are mainly actionable data and insightful reports (CSV, EXCEL, SAS, PDF, & RTF/WORD formats) and graphical plots (line graphs, bar charts, pie charts, and scatter plots) generated using SAS, R, Python, and Machine/Deep Learning. And Industry grade dashboards and database designs and developments using Python and MySQL/SQLite.

- ⊕ **Research**: conduct research works on Privacy & IoT/Edge-Services using optimized and Light-weight Deep Neural Networks and scrambling techniques. Edge computing technologies, Deep-learning/Machine Learning, dynamic chaotic techniques, security tools, a helluva Python programming, R, & SQL are employed. Authored more than 20 articles, conference papers, & book-chapter published in reputable journals.

- ⊕ **Datacenter & University ERP (October 2012 - October 2015)**: managed to build a modern, tier-III datacenter for Mekelle University (P.o.Box: 231, Tigray, Ethiopia) while Director of Information & Communication Technology (ICT) and got its business processes/flows automated.

- ⊕ **Electrical & SCADA Engineer (in two mega wind-farm projects)**: successfully worked as Electrical Engineer in a 120 MW Wind Farm project (September 2012 to June 2014, Ashegoda, Mekelle, Ethiopia) and as a SCADA Engineer in another 153 MW Wind Farm Project (July 2013 to December 2015; Adama, Ethiopia). I received a certificate of recognition nationally for my remarkable contribution, from the-then deputy prime minister.

- ⊕ **Teaching Career (September 2006 - August 2017)**: Graduate Assistant II, Assistant Lecturer, Lecturer, & Assistant professor in Mekelle University (P.o.Box: 231, Tigray, Ethiopia).

Leadership:

- ⊕ **Information & Communication Technology (ICT) Director (October 05, 2012 - October 26, 2015)**: managed the ICT directorate of Mekelle University (Ethiopia) for 3 years, responsible for running the entire university (had a population of more than 35, 000 students and staff) campus area network and ERP. The directorate had 6 departments and 106 IT staff members of various professions.

- ⊕ **Head & Program coordinator (January 2010 - October 2012)**: Head of the Computer Engineering Chair (11 staff members), and program coordinator of the department of Electrical & Computer Engineering (76 staff members), Mekelle University, for about one year each.

Education:

Binghamton University, State University of New York, Watson School of Engineering *(4400 Vestal Pkwy E, Binghamton, NY 13902, USA)*

PhD in Electrical & Computer Engineering (*Computer Engineering Stream*), ABD with perfect CPGA	**Expected: December 2021**

Addis Ababa University *(Addis Ababa, Ethiopia; P.O.Box 1176)*

M.Sc. in Computer Engineering	**Earned: September 2010**

Bahir Dar University *(Bahir Dar, Ethiopia; P.O.Box 79)*

B.Sc in Electrical & Computer Engineering	**Earned: July 06, 2006**

Technical Skills:

- ⊕ **Advanced Python Programming + SQL + Machine Learning**: employed for both academic and professional purposes since 2014, mainly for Data Science and Analysis (Numpy, Pandas, Scipy, Scikit Learn, Seaborn, Matplotlib, Plotly and Dash), for Deep Learning (Lightweight DNN for Conserving Privacy in Edge Devices as part of my PhD research), Network and Network Security Programming (Device Configurations, Extensive String Manipulations using RE, DNS Activity Monitoring, and Network Scan Detection projects), and industry grade dashboard development.

- ⊕ **SQL (MySQL, SQL Oracle, SQLite, ...)**: Excellent in SQL for database programming and creation of advanced queries and subqueries

- ⊕ **Fullstack Web Development**: Very good at fullstack web development using HTML, CSS, & JavaScript for frontend coding, Python for backend coding, and MySQL (or Oracle DB, PostgreSQL, etc) for database programming and management..

- ⊕ **SAS Programming + SQL**: For data analysis (data preprocessing, transforming, mining, visualization, and reporting in xlsx, pdf, & rtf formats).

- ⊕ **R Programming**: Very good in R for Statistical analysis, data cleaning, organizing, analyzing, and static and dynamic(dashboard) visualization using a bunch of packages (tidyverse, dplyr, ggplot2, lubridate, data.table, tidyr, shiny, plotly, mlr3, ...)

- ⊕ **Spreadsheet or google-sheets**: Excellent in data cleaning, organizing, analysis, visualization, and reporting using Microsoft Excel and Google-sheets. Besides, I took Google Data Analytics Certificate (datanalysis strategies plus spreadsheet, google-sheet, & R skill sets)

- ⊕ **MATLAB Programming**: very good at programming using MATLAB. Others that I used in the past: *C, C++, JAVA, VHDL, PHP, & Ruby*

- ⊕ **Network Administration & Security**: Very good expertise and experience in IT Networks and Operational Networks (SCADA) design, installation, and administration. I had worked as Network Admin, SCADA Engineer, & ICT Director, and was trained and certified in Advanced Network Administration, Data Center Infrastructures, and Network Security. I can create comprehensive designs for data-centers.