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Top Skills

Visual Basic for Applications (VBA)
R
Microsoft Excel

Languages

Spanish (Limited Working)
English (Native or Bilingual)

Certifications

Fundamentals of Engineering

Honors-Awards

UT Engineering Honors Program (EHP) Scholar
UT Engineering Scholarship Recipient
PHMA Scholarship Recipient
Salutatorian
IB Diploma Recipient

Anthony (Tony) ElHabr

EDP Reach Co-Chair at ERCOT
Round Rock, Texas

Summary

I am currently working as a Operations Engineer in the Grid Analysis group at ERCOT in Taylor, Texas (north Austin).

While my job and education hint at my familiarity with data analysis, they underrate just how passionate I am for data computation and analytics. Even before beginning the OMSA program at Georgia Tech, I gained experience with applied statistical techniques (machine learning) through open-source resources. I have continued to work on "side" projects that re-enforce and enhance the knowledge that I've accumulated over time. I write about some of my personal projects (mostly using R) and other things on my blog: https://tonyelhabr.rbind.io. Additionally, I should note that my passion for data analysis is not exclusive to things outside of work. I help organize and conduct a company data science group (which I co-founded in fall 2017) that meets periodically to discuss concepts, software, etc. in the data science realm. (As of summer 2019, we've had 18 meetings.)

At work, I mostly use R, SQL, and power systems-specific software (e.g. PowerWorld and PSSE) to try to extract insight about the Texas power system and energy market. While the day-to-day work does involve some periodic tasks (e.g. creating reports), much of my work involves ad-hoc assignments that arise due to real-time issues on the electric grid.

Experience

ERCOT

Operations Engineer (Grid Analysis)
December 2018 - Present
Taylor, Texas

Develop tools and procedures to monitor transmission and generator events on the grid in real-time and up to 90 days in the future.

Projects & Responsibilities:

N-2 Tool: Developed scripts for high performance power flow tool to evaluate N-2 contingencies on a daily basis.

Trend Analysis Tool: Assist with development and maintenance of internal web-based BI dashboards (JS, SAS, ASP.NET framework) for analyzing daily market and operational information.

Voltage Profile Seasonal Studies: Conduct seasonal studies coordinated with Transmission Service Providers (TSPs) to define generator voltage setpoints.

2019 Summer Analysis: Gathered data and created visuals for outages and ancillary services in review of 2019 summer.

ERCOT
Data Science Group Leader
September 2017 - Present

I helped co-found the data science group at my company. We hold meetings every month or so. (As of summer 2019, we've had 18 meetings.) While I've spoken as a presenter several times, I also am in charge of finding speakers (and topics) for meetings. Meetings have covered/discussed: R, python, SAS, SQL, Splunk, ssh, linear and logistic regression, neural networks, several other internal-only BI tools. Other interesting things we've done include a Kaggle-like competition for electric load forecasting and a "Makeover Monday"-like show and tell. Personally, I have given 3 presentations: (1) R and the "tidyverse"; (2) logistic regression; (3) live-coding of solutions for Introduction for Statistical Learning book exercises.

ERCOT
3 years 6 months

EDP Reach Co-Chair
January 2019 - Present

Co-lead a group of alumni (20+) from ERCOT's EDP in planning and running at least 5 different outreach events every year.

Organized a one-day on-site event for college student networking in Sep. 2018.

Market Operations Engineer (Congestion Revenue Rights)
June 2017 - December 2018 (1 year 7 months)
Taylor, TX

Prepared data for CRR auctions (about twice a month), and validated and analyzed results.

Projects/Studies:

Price Convergence: Evaluated correlations among settlement point prices across markets. Created price contour maps for illustrative purposes.

Bidding Behavior: Studied popularity of "penny bids", fixed hedges, and portfolio diversity among CRR participants.

CRR Validation: Led group in developing automated SAS tool to perform checks of CRR optimization output.

Engineering Development Program (EDP) Engineer
July 2016 - May 2017 (11 months)
Taylor, TX

Completed 12-month program to provide entry-level engineers with skills for becoming successful in power industry.

Projects:

NOX Emissions Sensitivity Analysis: Evaluated impact of varying NOX emission allowance costs on generation dispatch using UPLAN.

5 - Minute Resolution Wind Forecast Analysis: Evaluated proposed auto-regressive (AR) model for Multi-Interval Real-Time Market (MIRTM) and analyzed accuracy of third-party vendor's forecasts.

Daily Market Summary Template Improvements: Revised existing real-time (RT) and day-ahead market-(DAM) SQL queries to facilitate execution on separate database and re-factored VBA code to improve readability and consistency.

IEEE Power and Energy Society (IEEE-PES) - UT Student Branch
Vice President
August 2015 - May 2016 (10 months)
University of Texas at Austin

Electrical & Computer Engineering Department
Academic Tutor
August 2015 - May 2016 (10 months)
University of Texas at Austin

Responsibilities:

Provide guidance on homework and other course material for 2 classes: Solid-State Electronic Devices (EE 339) and Electromagnetic Engineering (EE 325)

Work 3 3-hour sessions per week

ExxonMobil

Instrumentation Engineering Intern
May 2015 - August 2015 (4 months)
Baton Rouge, Louisiana (Chemical Plant)

Major Projects:

Created Cause & Effect Matrix (CEM) for single burner 600 psig boiler

Developed upgrade for a fire detection system overseeing a turbo-expander/rercompressor system

Other Projects/Tasks:

Performed calculations to determine that change of orifice on several differential pressure flow meters was not justified

Investigated root cause and potential fix for a capacity issue with a control valve throttling cooling tower water supply

IEEE Power and Energy Society (IEEE-PES) - UT Student Branch Webmaster
January 2015 - May 2015 (5 months)
University of Texas at Austin

Responsibilities:

Managed society's website (sites.utexas.edu/ieeepes/) to give members updates on events and meetings

Luminant
Monitoring & Diagnostics Systems Support Intern
May 2014 - August 2014 (4 months)
Dallas, TX

Projects:

Enhanced Equipment Reliability Draft Equipment graphic displays used by Luminant's Power Optimization Center

Created numerical display for measurements collected for electrostatic precipitator/baghouse equipment at Luminant's lignite plants

CenterPoint Energy
Electric Distribution Planning and Computer Support Co-op
January 2014 - May 2014 (5 months)
Houston, TX (Greenspoint Service Center)

Major Project:

Completed 2016 Distribution Development Plan (DDP) for Hidden Valley Substation using CYME

Other Projects/Tasks:

Updated Year-to-Date Peak Loading Spreadsheet daily and analyzed temporal temperature and load patterns to project future load growth and associated expenses

Made "background (street) maps" using MicroStation and Geographical Information System (GIS) to give depth to CYME models

Conducted preliminary review of unity power factor substations and developed diagrams for possible placement of new capacitor banks to offset reactive power on circuit lines of Flewellen substation

Checked for errors in the DDPs created by other planners before they were submitted for approval

Institute of Electrical and Electronics Engineers (IEEE) - UT Student Branch (Main)
SEC Representative
October 2012 - December 2013 (1 year 3 months)
University of Texas at Austin

Responsibilities:

Voiced the concerns of Electrical Engineering (EE) students at UT at weekly SEC meetings

Relayed discussions at SEC meetings to IEEE members and officers

Raised awareness of activities occurring among all engineering students at UT by promoting both IEEE and SEC events

Served as EE representative on Cockrell School of Engineering College Tuition and Budget Advisory Committee (CTBAC)

Engendered connection between faculty and students on Academic Affairs Committee

4LifeHoops/San Antonio Zags AAU Basketball
Gym Site Manager
June 2012 - August 2013 (1 year 3 months)
San Antonio, TX

Responsibilities:

Sold concessions and entry fees and recorded games at local youth basketball tournaments

Communicated with other facilities workers to ensure gym safety and to enhance viewer experience

Answered questions from players and adults about facilities and costs

Cleaned up stands, cleared floors, and picked up trash

Schertz Public Library

Children's Volunteer/Information Desk Attendant
March 2010 - June 2012 (2 years 4 months)
Schertz, TX

Responsibilities:

Read with children ages 6 through 8 in weekly one-on-one hour sessions

Answered visitor questions in children's section of library

Assisted patrons in finding books

Cleaned floors and reshelved books

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Education

Georgia Institute of Technology
Master's of Science in Analytics, Operations Research · (2018 - 2020)

Cockrell School of Engineering, The University of Texas at Austin
Bachelor's degree, Electrical Engineering · (2012 - 2016)

University Extension (UT Online Affiliate)
 · (2013 - 2014)

Samuel Clemens High School
 · (2008 - 2012)