Redwan Walid

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Education

University of Maryland, Baltimore County — Maryland, US
Doctor of Philosophy in Information Systems, GPA - 3.94/4 — *Jan. 2019 – Present*

University of Maryland, Baltimore County — Maryland, US
Master of Science in Information Systems, GPA - 3.94/4 — *Jan. 2019 – Dec. 2020*

North South University — Dhaka, Bangladesh
Master of Business Administration, GPA - 3.33/4 — *May 2017 – Dec. 2018*

North South University — Dhaka, Bangladesh
Bachelor of Science in Electrical and Electronic Engineering, GPA - 3.37/4 — *Jan. 2010 – Dec. 2014*

Experience

Research Assistant, KnACC Lab — Jan. 2020 – Present
University of Maryland, Baltimore County — *Maryland, US*

- Working with the various issues and challenges faced in the electronic health recording system stored on the cloud.
- Built an open-source application using the Python Django framework. The application uses user attributes to control permission and access levels of the fields of an electronic health record. Attribute-based encryption was used for encrypting electronic health records.
- Built an ontology following the Health Insurance Portability and Accountability Act to control access to different fields of an electronic health record. The framework allows search over encrypted data that was built using the searchable encryption techniques.

Teaching Assistant, Introduction to Database Design — Jan. 2019 – Dec. 2019
University of Maryland, Baltimore County — *Maryland, US*

- Conducted discussion sessions to teach database basics like drawing Entity-Relationship diagram, basic SQL commands, and all types of SQL operations. Graded exam, assignment, and project.

Network Engineer — Mar. 2018 – Nov. 2018
IDLC Finance Limited — *Dhaka, Bangladesh*

- Administered Active Directory, Exchange, Domain Name System, Website, and proxy service.
- Managed system security, fixed failures, scheduled, and executed backups, and prepared system restoration/disaster recovery plans.

Assistant Network Engineer — Nov. 2015 – Feb. 2018
IDLC Finance Limited — *Dhaka, Bangladesh*

- Prepared and maintained all Data Center related documentation, requirement analysis, equipment configuration, and up-gradation planning.
- Monitored inter-branch connectivity across the IDLC group.

Junior Engineer — Feb. 2015 – Aug. 2015
X-net Limited — *Dhaka, Bangladesh*

- Wrote proposals for establishing a new cell site highlighting operational benefits. Drew network diagram/layout for the proposed cell site.
- Monitored the existing infrastructure for ensuring smooth network connectivity.

Projects

Delegated Access Control using Attribute-Based Encryption Summer 2020 – Present

- Planned to solve some real-world issues and challenges faced in the electronic health recording system stored on the cloud.
- Used Python Django framework to create an application where user attributes control access to different fields of an electronic health record. Electronic health records were encrypted using attribute-based encryption.
- Constructed an ontology following the Health Insurance Portability and Accountability Act to regulate access to different fields of an electronic health record. Searchable encryption techniques have been used to search through encrypted electronic health records.

Contact Tracing System Fall 2020

- Designed a contact tracing system for covid19 using PL/SQL.
- Designed the database, inserted some sample data, and implemented a set of features. Each feature was implemented as one or more Oracle PL/SQL procedures/functions.

Spam Detection using machine learning approaches Spring 2020

- Built predictive models that can be used to identify spam email.
- Tried to infer the relationship between the predictors and the response.

Churn prediction for customers in the banking system Spring 2020

- Built machine learning and deep learning models to predict customers which are likely to churn.
- Identified the features that are important for the prediction.

Predicting movie genre from plot summaries using Support Vector Machine Fall 2019

- Built classification models to predict movie genre from plot summaries.
- Used data pre-processing techniques to pre-process the open source data.

Is Your Better Half Prone to Divorce? Predicting Divorce Using Data Science Fall 2019

- Built machine models to predict divorce using an open-source dataset.
- Experimented with feature selection and data pre-processing techniques. The accuracy of the model was compared before and after feature selection.

Integrating information from multiple repositories Fall 2019

- Built a layer of integration above the local databases. The semantic layer is the layer of metadata that includes information that defines the local databases.
- Used dynamic SQL to merge different databases. Metadata layer was also used to map the same entities with another name.

Efficient and Flexible Aggregation and Distribution of MODIS Atmospheric Products Summer 2019

- Built models to process the data for a day or month within the shortest possible time.
- Implemented different parallel processing techniques and re-sampling methods in python to reduce computational time.

Assessing water budget sensitivity to precipitation using VIC hydrologic model Spring 2019

- Used variable infiltration capacity model to test the effect of precipitation uncertainties on water budget components for the Potomac river basin from April 2017 to September 2017, which was deployed on taki, UMBC high-performance computing system.
- Analyzed the monthly water balance components' sensitivity by increasing variability in input precipitation using parametric resampling methods.

Technical Skills

Languages: Python, C, PL/SQL, R, Unix, HTML/CSS
Developer Tools: PyCharm, Git, VS Code

Publications

Redwan Walid, Karuna Pande Joshi, Seung Geol Choi, and Dae-young Leroy Kim. Cloud-based Encrypted EHR System with Semantically Rich Access Control and Searchable Encryption. 7th International Workshop on Privacy and Security of Big Data (PSBD 2020), in conjunction with 2020 IEEE International Conference on Big Data (IEEE BigData 2020).