

## SUMMARY

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Energetic software engineer with the entrepreneurial spirit and 8+ years experiences building data, location-based, analytical, ML and search platforms. An enthusiastic team leader/player with a demonstrated experience in a multi-stack (mobile, backend, data and infrastructure) and software architecture.

## EXPERIENCE

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### • IN3

Cairo, Egypt

Jan 2018 - Present

#### Product Architect

- **Buzzdigger NLP/ML platform:** Platform for pre-training (analyze, Morphological analysis), train, evaluate and serve machine learning (**NLP/ML**) models for text data. Built the services and framework to train ML Models to extract and add enrichments for text data (language, dialect, topic, sentiment, NER) with focus on Arabic text.
- **Data Enrichment Engine:** Productionized the trained ML models by serving them through API service (Rest, RPC) and Stream Processing service. Built the ML platform infrastructure and flow for continuous training and continuous delivery for any new ML Model.
- **Search and filter API:** Service to offer full-text search and advanced filters API for the data.
- **Web app:** The primary web app (frontend and backend) that is used for user management, query management, data exploring, and analytics dashboards which is integrated with BI Tools. Lead the team to build backend **microservices** APIs for operations, queries, authentication and the integration with power BI, Apache Superset using **Python**, Javascript, **Flask**, Angular, Docker.
- **Data flow & Services:** Built the data flow and the stream processing services for data cleaning, enriching, indexing and storing to be searchable and usable by analytical and BI tools using **Python**, JS, **Kafka**, **Solr**, Hadoop, **Druid**, Superset, Spark, Hive, and Nifi. Design the schema for the data to be used in indexing and ETL for analytics.
- **Data Platform Infrastructure:** Design the infrastructure architecture for the data platform. Automate the implementation and setup of the data platform for stream and batch data processing. Docker, Ansible, Hadoop, YARN, Solr, **Zookeeper**, Druid, **Kafka**, Apache Nifi and Spark.
- Responsible for the full design and architecture of the **data** and ML platform beside the backend **microservices**.
- Lead the engineering team with hands-on to build the platform.

### • Trendyship

Cairo, Egypt

Jan 2016 - Nov 2017

#### CTO

- **Data Crawling and Scraping Collection services:** Built smart data crawling and collection, to collect fashion data and store it in the data store using **MongoDB**, MySQL, File System, and AWS S3. Collection service that initially collected and identified more than 500K available item per local market.
- **Data Cleaning:** Built smart data cleaning service using ML/NLP to auto clean, automatically extract attributes and learn from the data. Optimized the cleaning service to automatically clean 70% of the products' attributes and build reviewing system for manual cleaning of the rest 30% of the items then use that manual cleaning for learning.
- **Data Processing Pipeline:** Built data processing pipeline in two flows **stream** and **batch as MapReduce jobs** using **Kafka**, Storm.
- **Microservices backend:** Built many Rest/RPC API services for the platform using **Python**, **Django**, Flask.
- **Apps:** Built **iOS** mobile app in **Swift**. Lead the team to build web apps in AngularJS for that platform.
- **Platform Infrastructure:** Built scalable containerized infrastructure for the services and platform on 3 clusters on top of AWS (EC2, S3, ECS, lambda, ..), load balancing, Docker, Kubernetes, and API Gateway.
- **Product:** Lead the development team and working with the business team to map features to software design.

### • Wireless Stars

Indonesia / Egypt

Oct 2014 - Sep 2015

#### Software Architect/Tech Lead

- **ARTS:** System for road traffic estimation based on user cell-phone data. Lead a team of 3 and the collaboration with a team of 8 researchers to develop production-ready algorithms and modules (Localizer, Map Matcher, Transportation Mode detector, Traffic Estimator). Built the platform as lambda architecture with two flow batch and stream data flow. Designed and lead the development of the end to end data pipeline and all backend services related to the platform using **Java**, **Python**, Flume, Apache Camel, Hadoop (HDFS, MapReduce), PostgreSQL, PostGIS, MySQL, custom Mobile SDK, AVRO, and AWS.

- **Smart collection mobile SDK:** Design and lead building mobile SDK for location and sensor data collection.
- **Map-Component service:** Developed a service by utilizing PostGIS to implement spatial queries/operations integrated with different maps service (Here, Open Street, Esri) and consumed by various modules of the system.

## Wireless Stars

Cairo, Egypt

Senior Software Engineer

Feb 2013 - Nov 2014

- **WAnalytics mobile Analytics platform:** Responsible for the data flow collection, analytical processing, storing and analytics dashboard using **Java**, Python, Javascript, **Play**, MapReduce paradigm, FS and HDFS, Flume and RabbitMQ. Designed and built smart user behavior and interactions collection SDK for analytics. Lead the implementation using Java, **Android**, **iOS**, Objective-C.
- **Reality Gaming platform:** Is a reality treasurer hunt games experience on the app. Redesigned and built the custom game engine for the production level and scale. Contributed to building players, events, venue, and datastore backend using **Java**, **Spring**, **Play**, rest API. Built Rahal IOS App using Objective-C with **Location-based** service, AR, notifications, localization, and backend communications.
- **Amakken:** Is a places service to make it easy to index Improved search and query latency by 50% by optimizing custom Geo Location data index using Sphinx search engine, **Java**, Linux FS, MySql
- **Pushmanger:** Notifications and social media service to send a different kind of notification to users (emails, in-app, facebook posts, tweets). Implemented the service API, RPC endpoints and integration with APNs and GCM (PHP, API).
- **NavInside (Indoor positioning system):** Built indoor maps layer. Built positioning backend using **Javascript**, **Java**, PostgreSQL, PostGIS and Spring.
- Lead the design and implementation of infrastructure architecture for the products on Cloud providers (Linode, AWS, and local servers).

## WittyHeads

Alexandria, Egypt

Software Engineer

2012 - Dec 2013

- **Genie-US IOS APP:** Built mobile app in **Objective C** with **custom game engine** and heavy custom core animation. Design and implement the game engine and edutainment app.
- **Genie-US Backend:** Built Backend for the game for player gaming and leaderboard in PHP, **Java**.

## Means corp

Alexandria, Egypt

Software Engineer

2011 - 2012

- **KameleoMath:** Designed and developed native IOS and Android app and contributed to backend.

## Navy IT Department

Alexandria, Egypt

Software Engineer

2010 - Dec 2011

- **Fleet monitoring system:** A real-time system for tracking and monitoring targets and the fleet by collecting data from different locations and sources and serialize the data to the main server for visualization on maps and monitoring. **Java**, Oracle, Javascript, **C**.

## PROJECTS

- **UBardy:** : Advanced note taking app for students. iOS **Tribe:** Employee satisfaction iOS app.
- **Alsokary:** : IOT solution that offers custom hardware and software solution for diabetes stakeholders.

## TOOLS & FRAMEWORKS

- **Languages:** Python – Java – Swift – Objective-C – C – SQL – JavaScript
- **Frameworks:** IOS – Django – Django Rest – Flask – Spring – Java Play – Android – Angular JS
- **Data:** Kafka– Apache Solr – Hadoop – Map Reduce – Apache Spark – Elasticsearch – Lucene – Sphinx – Avro – Thrift – Flume – Storm – Apache Nifi – Memcached – RabbitMQ
- **Databases:** MySQL – PostgreSQL – MongoDB – CoreData – Realm
- **Libraries:** NLTK – Scrapy – scikit-learn
- **Tools:** Git – Docker – Kubernetes – Ansible – AWS – Jenkins – Maven – Cocoa-pods – Carthage – Grunt/Gulp/Bower – Google App Engine – Nginx – Unicorn – Tomcat – Azure

## EDUCATION

- **Arab Academy for Science, Technology** Alexandria, Egypt  
*Master of Science in Computer Engineering (unfinished); GPA: 3.67/4.0* Sep. 2011 – Dec. 2013
- **Alexandria Institute of Engineering and Technology** Alexandria, Egypt  
*B.Sc. Computer Engineering; GPA: 3.06/4.0* Sep. 2005 – July. 2010
- Graduation Project: Evolving Neural network trained by a Genetic algorithm for board game playing Grade: A