

SKILLS:

Web Service Development

Backend development techniques:

- Design patterns
- Dependency management tools
- Designing secured distributed architectures
- Behavior driven development
- Frameworks (Sinatra, Rails, Django, Codeigniter, Node...)
- JSON, XML
- "Continuous integration" (Travis...)
- "Continuous deployment" (Heroku, Codeship...)
- "Collaborative development" (Slack, Trello...)

Frontend development techniques:

- User acceptance tests (Selenium...)
- Frameworks (Bootstrap, Angular, JQuery, AJAX, Meteor, MEAN (Mongo, Express, Angular, Node)...)
 - "Reactive" user experiences (background jobs, queues, web sockets...)

Database Management

- RDBMS design and implementation (MySQL, PostgreSQL, SQL Server, Oracle Express...)
- NoSQL (DynamoDB, MongoDB...)
- Backup and recovery

Programming/Tools:

| | | | |
|------------|--------|-----------|--------|
| Python | ★★★★★★ | PHP | ★★★★★★ |
| Ruby | ★★★★★★ | JAVA | ★★★★★★ |
| C++/C# | ★★★★★★ | R | ★★★★★★ |
| JavaScript | ★★★★★★ | HTML5 | ★★★★★★ |
| CSS3 | ★★★★★★ | Photoshop | ★★★★★★ |
| SQL | ★★★★★★ | Bash | ★★★★★★ |

Data Science

- Data mining/analysis packages (Pandas, scikit-learn, NLTK, Weka, Orange, RapidMiner...)
- Visualizations (Highcharts, Plotly, D3.js, FusionCharts, Google Maps...)
- Data exploration
- Data pre-processing
- Data mining techniques and evaluation (Supervised and unsupervised)
- GIS (spatial analysis)

EDUCATION:

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|------------------|--|---|
| 2015-2017 | Master in Information Systems and Applications (ISA) June 2017 Graduate Candidate | National Tsing Hua University Hsinchu, Taiwan |
| 2012-2015 | Certificate Courses FreeCodeCamp (freecodecamp.com) CodeSchool (codeschool.com) PHP II: Higher Structures, Zend Technologies Inc., February 2015 Going Places with Spatial Analysis, Udemy, December 2014 | Personal self-development Online courses |
| 2007-2011 | Bachelor of Science in Information Technology (IT) Cum Laude Honours | University of Belize Belmopan, Belize |

RESEARCH AND DEVELOPMENT:

2016 – 2017

Master's Thesis

National Tsing Hua University (Hsinchu)

Topic: Exploring spatio-temporal behaviours of bipolar users on Twitter

Goal: This work will involve studying Twitter users who have explicitly stated they were diagnosed with bipolar. User tweets will be analysed to explore their mood cycles over time and location. The goal of this research is to provide insight into bipolar patients mood cycles through visualizations which can help patients and clinicians understand their onset periods. Ongoing development work for this research is outlined below:

Data extraction: Developed Python program to extract data from Twitter REST API based on explicit statements of bipolar disorder diagnosis

Data exploration: Wrote Python and R scripts to explore and visualize data distributions, tweet text TF/IDF and frequency distributions.

Data Pre-processing: Utilized Python libraries to carry out tasks including removing URLs, mentions, replacing emoji and smileys and stemming

Data Preparation: Label user tweets with features to be used in analysis. User tweets will be labelled with emotion scores for 8 mood states based on a mood lexicon called Depeche Mood. Tweets will also be checked for keywords related to symptoms occurring during the mood cycle.

WORK EXPERIENCE:

Aug 2011 – 2015

Database Administrator

Environmental Research Institute (Belize)

My primary task involved developing and maintaining user friendly and secure web applications primarily for data management and analysis using open source technologies (See nweat.github.io/projects for details). I was also primarily responsible for administering onsite Linux based web and database servers. Additional responsibilities included:

- Develop database backup and recovery procedures
- Provide IT support to staff
- Supervise student assistants
- Generate timely ad-hoc analysis reports for company directors
- Maintain a publications repository (eprints.uberibz.org/)

Feb – May 2011

IT Programmer (Internship)

Ministry of Natural Resources (Belize)

Successfully developed two database driven desktop applications for data management purposes in Visual Studio 2010 .NET environment (C#). I was involved in all phases of software development including requirements analysis and database design.

Feb – May 2009

IT Programmer (Internship)

Ministry of Health (Belize)

Generated SQL queries to produce custom reports using Jaspersoft studio (iReport)

COURSE PROJECTS:

2016 **Data Mining Project** **National Tsing Hua University (Taiwan)**

Discover interesting insights from a dataset provided by Hopenglish e-learning company based in Taiwan. Hopenglish provides an online e-learning platform that focuses on teaching English through multimedia content. The dataset consisted of over 4000 records of student behaviours which showed how students interacted with videos. After gaining extensive insights into the data, we found a pattern in the student behaviour which could eventually lead to students quitting the service. We performed a classification using a decision tree to perform a prediction in an effort to identify when students lose interest. Our argument is that if we can identify when students lose interest, the company can recommend better videos that could keep the users engaged and reduce student dropout.

Tasks:

- Data exploration (Pandas, Jupyter, Plotly)
- Data pre-processing (Feature selection/creation to address curse of dimensionality problems)
- Data mining algorithm (Supervised algorithm to perform classification: C4.5 Decision Tree - 70% training/30% testing)
- Data mining evaluation (10 Fold Cross Validation with 64% accuracy)

2016 **Service Security Project** **National Tsing Hua University (Taiwan)**

Developed a secured service that allows registered users to generate and share shortened URLs among members with appropriate permissions. The service was built in Ruby (Sinatra) using Slim and Bootstrap for the client application. We used Heroku and Postgres to host our services and databases. We made use of Rbnacl cryptographic libraries for implementing security features.

Tasks:

- Securing databases through SQL injection, mass assignment restrictions, ORM based encryption
- User Authentication
- Password hashing (Salt + Hash + Key stretching)
- Token based Authentication (secured session and cookies, safe user registration and authorization)
- Token based Authorization (Signed client apps (JWK), secure API requests)
- OAuth Authorization Protocol
- Preventing XSS/CSRF attacks and protecting HTTP headers
- API and interface testing
- Defining access control
- Enforcing SSL/TLS

2015 **Service Oriented Architecture Project** **National Tsing Hua University (Taiwan)**

Developed TraViz Web Application and Data API service. TraViz allows users to generate visualizations of lonely planet tour listings based on specified countries, categories and price range. The service was built in Ruby (Sinatra) following Agile development model. Slim and Bootstrap was used for the client application.

Tasks:

- Ruby gem created for lonely planet web scraping (OGA)
- Continuous integration (Travis CI)
- Continuous deployment (Heroku, Codeship)
- Distributed Postgres database
- Heavy emphasis on testing (Minitest, Stubs)
- Interface design and testing (Mobile first interface)
- Data visualization (HighCharts, Chartkick)
- Reactive user experience using background jobs, queues, web sockets, web caching
- Refactored MVC with OOP (service, value, form objects)

COURSE PROJECTS:

2015 Advanced Database Project National Tsing Hua University (Taiwan)

Developed a dating service that recommends potential matches to users using Django and Neo4J Graph Database. We used bootstrap for the frontend application design.

Tasks:

- User Authentication
- NeoModel Object Graph Mapper(OGM) to communicate with database
- Implemented collaborative filtering techniques through custom Neo4J queries and Python code to recommend matches based on similar interests

PERSONAL QUALITIES:

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|------------------|--------|---------------------|--------|-------------|--------|
| Self-motivated | ★★★★★★ | Hardworking | ★★★★★★ | Dedicated | ★★★★★★ |
| Quick learner | ★★★★★★ | Enthusiastic | ★★★★★★ | Team player | ★★★★★★ |
| Takes initiative | ★★★★★★ | Attentive to detail | ★★★★★★ | | |
| Resourceful | ★★★★★★ | Organized | ★★★★★ | | |

LANGUAGES:

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|---------|--------|---------|-------|---------|-------|
| English | ★★★★★★ | Spanish | ★★★★★ | Chinese | ★☆☆☆☆ |
|---------|--------|---------|-------|---------|-------|