

Erik Helal

9401 Boisjoli
Pierrefonds, QC – H8Y 3M2

Erik.helal@gmail.com
514-607-2978

Education

B.Eng - Chemical Engineering, Computer Science

Sept 2016 - May 2020

McGill University, Montreal, QC

- Supplemented a major in chemical engineering with a minor in computer science. Completed the program without extending it.
- Developed an understanding of Object-Oriented Programming (OOP) patterns and anti-patterns in an academic setting.
- Richard Herzer, Dr. P.K. Ganguli Memorial, John Howard Ambrose and ACDEG scholarships recipient: awarded for academic achievement and community involvement. These scholarships paid for half of my tuition.
- CGPA: 3.81/4.00 – Graduated with distinction.

Tech stack at a glance: OOP, Java, JUnit 5, Python, NumPy, Scikit-learn, PyTorch, C, MATLAB

Relevant Professional Experience

Flighthub: Full Stack Software Developer

June 2019 – Present

I work on the web apps at Flighthub.com and its American affiliate Justfly.com, online travel agencies (OTA). When I started, I had no prior experience in web development. Within a few months, I developed a professionally proficient understanding of PHP, JavaScript/jQuery + HTML + CSS, and MySQL. It is a tech company with only about 15 developers, so my work is very diverse.

Tech stack at a glance: OOP architecture, PHP 7.2 (with static typing as much as possible), Solar (MVC framework), PHPUnit, Composer, MySQL, Clickhouse, Kafka, Redis, JavaScript, jQuery, ReactJS, HTML, CSS, Elasticsearch, Docker, Kubernetes, Kotlin (Java), Vagrant VM, SSH, Linux (Debian/Ubuntu), Git, Github, Travis CI, Trello, Slack, NewRelic, Jira, Confluence, REST API, SOAP (XML) API, JetBrains (PhpStorm, IntelliJ IDEA, DataGrip)

Below are some examples of projects that I have worked on:

- I updated our implementation of our main supplier's SOAP API for flight ticket pricing and booking to the latest version. We were using severely outdated versions of methods in our supplier's API, which limited the features available to us. Furthermore, the internal structures that our PHP 7.2 application used to interact with this supplier's API were poorly designed legacy code and therefore difficult to use. First, I cross-referenced our current implementation of the API with the documentation of the latest version to determine what differences had to be accounted for. Accordingly, alongside tech leads, I participated in planning the rearchitecting of our internal structures following OOP principles such as separation of concerns. Finally, I carried out the implementation of this upgrade alone. I was also in charge of designing and writing test suites for this integration using the PHPUnit framework and concepts such as mocking. In total, the project was approximately 10,000 lines of code (incl. tests). Ultimately, the completion of this project increased the quality of our content, allowing us to better capitalize on booking class upgrades (e.g. basic economy to standard economy); such upgrades increased by 25%, generating more revenue per booking for the company.
- The company relies significantly on email marketing as a means of generating sales (e.g. newsletters, price alerts...). However, over time, the portions of the PHP codebase that deal with email-related logic were poorly maintained and undocumented. As a result, the company eventually found itself in a position where there remained no more developers with knowledge about that code, which meant that the marketing team no longer trusted the data that they were working with in Salesforce, which our application pushes data to. I was therefore given the task of investigating and documenting the entire email logic in our app. The first part of this task was to identify and analyze ~12 cronjobs that process data from MySQL tables and push that data to Salesforce in order to explain to the marketing team the relation between the data in our app's database and that in Salesforce. Then, the second part of this task was to scan the codebase to identify and test all the possible front-end avenues through which the app could gather and store data in the MySQL database. The final step was to fix any encountered bugs. This effectively validated the app → MySQL → crons → Salesforce data pipeline and allowed the marketing team to make more informed decisions. Ultimately, this work allowed us to register an annual record revenue day from email sales.

- Normally, we have constantly running cronjobs that perform flight searches in order to gather pricing data to be used for various purposes (e.g. business analytics, price alerts etc...). However, the number of servers at our disposal was reduced, and the remaining servers could no longer handle the workload (RAM usage was at ~100%). Consequently, I was tasked with figuring out how we could throttle the workload in such a way that the servers would be able to process their entire daily work queues without being overloaded. To accomplish this, I first stress tested the servers to determine how many simultaneous flight search tasks they could handle while keeping RAM usage at a reasonable level (~70%). Then, based on the daily work queue, I calculated how many flight searches had to be processed on an hourly basis and ultimately deduced what the task batch size should be for safe processing. This work allowed us to relaunch these cronjobs despite the reduced computing power, allowing for the restoration of business-critical dataflows.

Community Engagement and Leadership

Vice President of Finance: *National Organization for Business and Engineering (NOBE) – McGill Chapter* **Sept 2017 - Aug 2018**

- Prepared budget for business-themed networking events, workshops, and case competitions catered to engineering students. Implemented control procedures to ensure the balance of the budget. Recorded cash receipts and disbursements.
- Presented the club's activities and budget to the governing student body for funding purposes.

Director of Outgoing Global Volunteers: *AIESEC McGill* **Sept 2016 - Aug 2017**

- Consulted university students to find volunteering opportunities in international startups or NGO's.
- Fostered strategic relationships with AIESEC entities abroad to facilitate student exchanges. Coordinated the logistics of student exchanges.
- Marketed AIESEC programs to students on campus through strategic outreach and hosting information sessions.
- Helped manage a team of 16 members, ultimately coordinating over 50 exchanges.

Languages

- **English + French:** Native speaker
- **Japanese:** Officially professionally proficient. Passed proficiency exam from government of Japan, second highest level: JLPT N2.