OLIVER STAPPAS

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EDUCATION

McGill University | BA Software Engineering / Minor Applied Artificial Intelligence | 2024

- **GPA**: 3.78 / 4.00
- **Relevant Coursework**: Machine Learning, Deep Learning, Database Systems, Operating Systems, Parallel Computing, Software Delivery, Algorithm Design, Computer Networks, Distributed Systems, Reinforcement Learning

Marianopolis College | D.E.C., Pure and Applied Science | 2019

EXPERIENCE

Intact Financial Corporation | Montreal, QC
AI Back-End Developer Intern | Sep – Dec 2022

- Helped develop **Kubernetes Pods** deletion functionality on **Airflow** using **Python** and **Kubernetes API**, with accompanying **Pytest** unit tests.
- Tested integration of basic **Airflow** functionality on **Amazon SageMaker**.
- Introduced **semantic releasing** to **GitLab** CI/CD pipelines, allowing for fully automated version management and package publishing.
- Added ability for users to set size of ephemeral storage for **JupyterHub** sessions using **JavaScript** and **HTML.**

Ericsson Canada | Montreal, QC
Integration Engineer Intern | May – Aug 2022

- Designed a **Grafana** dashboard to display CPU and memory usage for **Kubernetes Pods** and **containers** used on the **OpenShift** platform for the Session Management Function (SMF) part of **5G** Service-Based Architecture.
- Developed **Python** script to process incoming Pod CPU and memory usage data and generated CSV files containing data filtered for specific **containers**.
- Developed **Bash** script to perform extensive checks on the health of the applications and platform within **OpenShift**.
- Made improvements to **Vue.js** frontend, **Node.js** backend and **Dockerfiles** for AI team's Data Catalog application.

CareSimple | Montreal, QC
Software Developer Intern | May – Aug 2021

- Worked in **Agile** environment following **Scrum** framework, using **JIRA** and **Bitbucket** to document requirements and goals.
- Helped design **API** for gathering patient onboarding and compliance data using **PHP**.
- Designed "Reports" page on clinician website, using **React** and **Chart.js** library, getting data from aforementioned APIs.
- Proposed new indexes for **MySQL** database tables that performed many full scans.

PROJECTS

Facebook Marketplace Enhancement | Jan – April 2024

- Developed a mock Facebook Marketplace using **Python**, **Flask**, and **HTML** to identify and flag potentially stolen bicycles.
- Implemented image matching with **Convolutional Neural Networks** (**ResNet50** and **VGG16**) to compare listing photos against the Bike Index **database**.
- Utilized **Natural Language Processing (NLP)** techniques to analyze and compare textual descriptions of bike listings for enhanced accuracy in detecting stolen items.

Hacker Jobs | Nov – Dec 2023

- Developed a full-stack web application using **NestJS** and **Next.js** to simplify the job search process for computer science professionals.
- Implemented secure user authentication with account creation and login using **SHA-256 encryption** and **session management**.
- Designed and styled the frontend with custom **CSS** to provide a user-friendly interface for browsing job postings.
- Created a **RESTful API** with NestJS to manage users and job postings, enabling efficient job search functionality.

FIFA World Cup Management Application | Jan – Apr 2023

- Designed an **Entity-Relationship** (ER) schema for the FIFA World Cup database, capturing teams, players, coaches, referees, matches, goals, and stadiums using ER Diagrams.
- Developed and implemented a **relational schema** in **DB2**, including creating tables, populating data, and performing maintenance, queries, and updates using **SQL**.
- Programmed a user-friendly command line **Java** application to interact with the database, providing functionalities for data management and retrieval.

Human Pose Estimation from Sports Videos using Deep Learning (Capstone) | Sep 2022 – April 2023

- Utilized **deep learning** techniques with **top-down** and **bottom-up networks** using **Python**, to improve existing human **pose estimation** in complex hockey videos, addressing challenges like occlusion and multiple players.
- Created an **integration network** combining predictions from both top-down and bottom-up models, fine-tuned with augmented datasets to enhance accuracy in detecting player poses and identifying penalties.
- Conducted qualitative and quantitative analysis using **metrics** such as **mAP** and **PCK**, and documented the process and results in a detailed report, highlighting the model's performance and potential improvements.

Digit & Letter Classification Competition Using CNNs | Nov 2021

- **Finished first** in classwide **Kaggle** competition with an accuracy score of **97.8%**.
- Implemented **majority voting** with predesigned and custom designed **convolutional neural networks** using **PyTorch**.
- Utilized additional **unlabeled** data and **augmented** all training data to improve **generalization**.

Hockey Statistics | July 2021 – (Ongoing)

- Designed and implemented a scalable backend using **Python (Flask)** and **Go (Gin)** for interacting with the **NHL's API** and analytical data.
- Created and managed **databases**, including **MongoDB** and **PostgreSQL**, with schema migrations and complex queries to store and process hockey statistics.
- Built a responsive frontend with **Next.js**, **TypeScript**, and modern UI libraries (**Chakra UI**, **Tailwind CSS**) for seamless user interaction.
- Automated data updates with weekly **Azure Functions** for integrating analytical data.

SmartGallery | Sep – Dec 2020

- Created an art gallery **Vue.js** web app on **Heroku** with an accompanying **Android** app where artists can upload artworks and customers can browse and purchase them.
- Designed the end-to-end service using requirements, **UML** diagrams and generated POJOs.
- Created a backend **Java Spring Boot RESTful** service with a **Hibernate PostgreSQL** database.
- Configured a continuous integration **Gradle** build and **JUnit** test system using **Travis CI.**

TECHNICAL SKILLS

Programming Languages
Python, Java, Bash, JavaScript (Node.js, TypeScript), Go, C, PHP, SQL, OCaml, VHDL, Assembly

IDEs & Editors
Android Studio, Eclipse, IDLE, IntelliJ IDEA, MySQLWorkbench, PhpStorm, PyCharm, Sublime Text, Visual Studio Code

Tools & Services
AWS, Azure DevOps, Bitbucket, Docker, Git, GitHub, GitLab, Grafana, Jira, Kubernetes, Microsoft Azure, MongoDB, MySQL, Node.js, PostgreSQL, Postman, Vim

Operating Systems
macOS, Ubuntu, Windows

AWARDS

Engineering Excellence Bursary | Apr 2021

Ministère de l'Enseignement supérieur

LANGUAGES

Fluent | English, French
Intermediate | Greek