Michael Halim

Data Scientist · Chemical Engineering Graduate · Biomedical Researcher

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Skills

Languages	Python, SQL, MATLAB
Data Science	Numpy, Pandas, Scikit-Learn, Tensorflow, NLTK, Spacy, Seaborn, Plotly, Beautiful Soup, Tableau, Excel
Development Tools	HTML, CSS, Flask, Streamlit, AWS, Git

Data Science Projects

GiftFinder Developed a web-app that is able to predict a recipient's interests from their Twitter history to recommend the perfect gift; model achieved up to 85% accuracy. *Algorithms and Tools*: Support Vector Classifier, Natural Language Processing, Beautiful Soup, HTML, CSS, Streamlit. *Github Link*

Flight Delay Predictor Developed a machine learning model in Python using data from 1 million historical flights stored in Postgres database to predict flight delay times in January 2020. *Algorithms*: Gradient Boosting Regressor, Linear Discrimant Analysis, Random Forest Classifier, GridSearchCV. *Github Link*.

Experience

ASPECT BIOSYSTEMS   *Vancouver, BC*
BIOMATERIAL RESEARCH INTERN   *May, 2020 - August, 2020*
- Developed techniques for the synthesis of alginate-based bio-inks with improved mechanical properties and biocompatibility for more efficacious tissue therapeutics
- Utilized Python to model the compressive and tensile strength of fibres constructed using microfluidic 3D-printing technology
- Discovered that formulated bio-ink was able to increase fibre tensile strength by 35%; presented findings in presentations and reports

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE   *Lausanne, Switzerland*
IMMUNOENGINEERING RESEARCH INTERN - LABORATORY OF BIOMATERIALS FOR IMMUNOENGINEERING   *March, 2019 - August, 2019*
- Led an independent study to investigate the effects of micro-particle hydrophobicity on immune response, resulting in a novel in vitro platform capable of reducing T-cell proliferation time by 20%
- Designed experimental protocol for material synthesis, antibody-conjugation, and T-cell expansion studies using techniques like flow cytometry and cell-culture
- Utilized Excel and FlowJo to characterize particle hydrophobicity and cell population and presented findings in lab presentations

UNIVERSITY HEALTH NETWORK, PRINCESS MARGARET CANCER CENTRE   *Toronto, ON*
NANOMEDICINE RESEARCH INTERN - ZHENG LAB FOR MOLECULAR IMAGING AND NANOMEDICINE   *September, 2018 - February, 2019*
- Collected biological data and used MATLAB to model the pharmacokinetic and toxicology profiles of a novel porphyrin-lipid nanomedicine in preclinical models to facilitate its clinical translation
- Developed a novel protocol to load biomolecules in porphyrin-lipid nanovesicles, achieving encapsulation efficiencies of up to 80%
- Research culminated in two poster presentations at research conferences and one second-author publication at a reputable journal

Publications and Presentations

Journal of Controlled Release "Guidelines for the Experimental Design of Pharmacokinetic Studies with Nanomaterials in Pre-clinical Animal Models." Second-Author Publication. April, 2020.

Controlled Release Society Annual Meeting and Exposition "Porphyrin-Lipid Nanovesicles for Image-Guided Delivery of Biological Agents" Poster Presentation. July, 2019. *Valencia, Spain*.

Education

Lighthouse Labs   *Vancouver, BC*
DIPLOMA IN DATA SCIENCE   *May, 2021 - August, 2021*
- Topics: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Time Series, Recommender Engines

The University of British Columbia   *Vancouver, BC*
BACHELOR OF APPLIED SCIENCE IN CHEMICAL AND BIOLOGICAL ENGINEERING, WITH DISTINCTION (CGPA: 86%)   *September, 2016 - May, 2021*
- Courses: Calculus, Linear Algebra, Statistics, Chemical Separations, Reactor Design, Process Modeling, Computational Methods
- Awards: Leonard Staley Scholarship (2020), Go Global Research Abroad Award (2019), Outstanding International Student Award (2016)