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

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 Preclinical 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*.

Data Science Projects

GiftFinder Developed a web-app that is able to predict a recipient's interests from their Tweets to recommend the perfect gift with up to 85% accuracy. *Algorithms and Tools*: Support Vector Machines, Sentiment Analysis, Latent Dirichlet Allocation, Streamlit

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

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)