Michael Son

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Meticulous and analytical researcher with expertise in molecular biology techniques and data analysis. Detail-oriented and methodical professional proficient in conducting rigorous experimental research utilizing state-of-the-art equipment. Familiar with gathering, cleaning, and organizing data for use by technical and non-technical personnel. Advanced understanding of statistical, algebraic, and other analytical techniques.

SKILLS

- Programming Languages: Python | SQL
  Libraries: NumPy | pandas | Matplotlib | Seaborn | Plotly | Scikit-Learn | Imbalanced-Learn | XGBoost | Keras | Scikit-Image
- Data Science: Data Cleaning | Data Analysis | Data Visualization | Feature Engineering | Machine Learning | Neural Networks | Deep Learning
- Molecular Biology Techniques: Cell Culture | Western Blot | Immunocytochemistry | DNA/RNA Isolation | Molecular Cloning | PCR
- Analytical Techniques: UV-VIS Spectroscopy | Dynamic Light Scattering | Zeta Potential | Analytical Ultracentrifugation | SEDFIT | SEDANAL | Oligonucleotide Quantification | Capillary Electrophoresis
- Equipment/Instrument Used: Analytikjena Specord 210 Plus | Malvern Instruments Zetasizer Nanoseries | Veriti Dx Thermal Cycler | Beckman Coulter Optima L-90K Ultracentrifuge | Applied Biosystems 3500 Series Genetic Analyzer | Applied Biosystems SeqStudio Flex Series Genetic Analyzer

PROJECTS

Lending Club Loan Approval Optimization
- Constructed a binary classifier to differentiate unprofitable loans from the rest.
- Tools Used: NumPy | pandas | Matplotlib | Seaborn | Scikit-Learn | Imbalanced-Learn | XGBoost
- Best Model: eXtreme Gradient Boosting
- Best Model Performance: Minority F1 = 0.56 | Majority F1 = 0.89 | ROC AUC = 0.80 Accuracy = 83%

Melanoma Tumor Size Prediction
- Developed a regressor to predict melanoma tumor sizes.
- Tools Used: NumPy | pandas | Matplotlib | Seaborn | Scikit-Learn | Keras
- Best Model: Random Forest
- Best Model Performance: MSE = 8.25 | R2 = 0.23

WORK EXPERIENCE

System Verification & Validation Engineer, Scientist   08/2021 – 12/2021
Thermo Fisher Scientific | South San Francisco, CA
- Performed various verification tests on the Applied Biosystems SeqStudio Flex Series Genetic Analyzer, as a member of the Verification & Validation team.
- Filed and reported deviations observed during the verification tests of the Applied Biosystems SeqStudio Flex Series Genetic Analyzer.
- Identified and corrected errors in test protocols and associated documentations, contributing to quality assurance.

Engineering Intern   05/2017 – 08/2017
IMS & Nano Tech Co., Ltd. | Seoul, South Korea
- Evaluated potential algorithms for the signal processing of 3D imaging sensor based on white light scanning interferometry (WSI), as a member of the Research & Development team.
- Recommended and implemented the SEST algorithm in the imaging sensor in development, witnessed significant improvement in the scanning speed while retaining the accuracy.
- Inspected technical translation of imaging device configuration and notification settings for quality assurance.
- Identified and fixed technical translation errors in configuration and notification settings of the imaging device, enabling the product shipping without any delays or losses.

Student Research Assistant   05/2013 – 08/2013
Korea Institute of Science and Technology | Seoul, South Korea
- Performed cell culture, western blot, immunocytochemistry, DNA/RNA isolation, PCR, and molecular cloning for the in vitro loss-of-function studies on PAR 3/6 proteins.
- Verified the extent of PAR 3/6 proteins' influence on the axon regeneration of adult mice dorsal root ganglion.
- Planned and executed chronic stress model study entailing axon regeneration in adult mice neuron.

EDUCATION

Data Science Career Track   05/2021
Springboard | San Francisco, CA, US
- Hands-on curriculum with 1:1 industry expert mentor oversight, and completion of 2 in-depth capstone projects.
- Mastered skills in Python, SQL, data analysis, data visualization, hypothesis testing, and machine learning.

Master of Science | Chemical and Bioengineering   09/2019
Friedrich-Alexander-Universität Erlangen-Nürnberg | Erlangen, Bavaria, Germany
Master's Thesis: Protein Aggregation Studies of the Model System Beta-Lactoglobulin via Multiwavelength Analytical Ultracentrifugation
- Conducted a comprehensive investigation into protein aggregation, utilizing nanoscale analytical equipment such as Zetasizer and Optima L-90K Ultracentrifuge equipped with multiwavelength (MWL) absorbance optics to perform several advanced analytical techniques including dynamic light scattering (DLS) and analytical ultracentrifugation (AUC).
- Analyzed the concentration and pH-dependence of protein-protein interaction (PPI) via SEDFIT and SEDANAL.

- Successfully quantified the monomer-dimer self-association kinetics of PPI using equilibrium coefficient and solution non-ideality parameters (Gralen coefficient, diffusion interaction parameter, osmotic second virial coefficient).
- Endorsed AUC as a profound quantitative method for analyzing protein solution behavior.

Honours Bachelor of Science | Neuroscience/Cell Molecular Biology Double Major   06/2014
University of Toronto – St. George | Toronto, ON, Canada
- HBSc. in Neuroscience and Cell Molecular Biology with an emphasis on human biology, cell biology, and associated pathologies.