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
- Experimental Techniques: Cell Culture | Western Blot | Immunocytochemistry | DNA/RNA Isolation | Molecular Cloning | PCR | RNA-Seq | In Vitro Transcription | Protein Dialysis
- Analytical Techniques: UV-VIS Spectroscopy | Dynamic Light Scattering | Zeta Potential | Analytical Ultracentrifugation | Oligonucleotide Quantification | Capillary Electrophoresis | qPCR | Fragment Analysis | Fluorometric Polymerase Assay | dsDNA HS Assay | Qualitative/Quantitative Gel Assays

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

Associate Scientist II – R&D 01/2022 – Present

Tecan Genomics, Inc. | Redwood City, CA

- Design and conduct experimental studies to develop enzymes used in next-generation sequencing (NGS) library preparation.
- Conduct various performance tests on enzymes.
- Develop and perform qualitative/quantitative gel-based nuclease assays for QA/QC of enzymes.
- Develop fluorescent assay to quantitate enzyme activity.
- Generate quality specifications for enzymes.
- Devise and conduct the stability/shelf-life study of enzymes.
- Analyze the experimental data.
- Documentation of experimental work and SOPs.

System Verification & Validation Engineer, Scientist 08/2021 – 01/2022

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 documentation, 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 sensors 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 the 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 axon regeneration of adult mice dorsal root ganglion.
- Planned and conducted a chronic stress model study investigating axon regeneration in adult mice neurons.

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 multiple 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 neurobiology, cell biology, and associated pathologies.