

# 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
- **Data Science:** Data Cleaning | Data Analysis | Data Visualization | Feature Engineering | Machine Learning
- **Experimental Techniques:** Cell Culture | Western Blot | Immunocytochemistry | DNA/RNA Isolation | Molecular Cloning | PCR | DNA/RNA-Seq | In Vitro Transcription | Protein Dialysis | Gel Electrophoresis | SDS-PAGE
- **Analytical Techniques:** UV-VIS Spectroscopy | Dynamic Light Scattering | Zeta Potential | Analytical Ultracentrifugation | Oligonucleotide Quantification | Capillary Electrophoresis | qPCR/RT-PCR | Fragment Analysis | Fluorometric Analysis (DNA/RNA) | Enzyme Kinetic Assay | Gel Image Analysis
- **R&D:** Analytical Assay Development | Proof of Concept Development | Instrument Scripting

## WORK EXPERIENCE

### Associate Scientist III – R&D

09/2022 – Present

*Tecan Genomics, Inc. | Redwood City, CA*

- Develop a proof of concept to incorporate NGS library prep workflows into an automated system (MagicPrep) as part of B2B projects.
  - Perform benchtop NGS library prep to generate baseline data.
  - Develop and optimize automated NGS library prep workflows for the existing NGS library preps.
  - Write instrument scripts for the automated NGS library prep workflows.
  - Test the automated NGS library prep workflows on the instrument.
  - Succeeded in generating DNA libraries of the target size via MagicPrep.
  - Demonstrated the feasibility of replacing the original bead wash chemistry with that of in-house.
- Devise and conduct experiments to enhance the internal QC of Sensiscript reverse transcriptase.

### Associate Scientist II – R&D

01/2022 – 09/2022

*Tecan Genomics, Inc. | Redwood City, CA*

- Designed and conducted experimental studies to develop a reverse transcriptase used in NGS library prep.
- Developed and performed gel-based nuclease assays for QA/QC of the reverse transcriptase.
- Developed a highly sensitive and robust enzyme kinetic assay for reverse transcriptase.
  - Discerns difference in molar concentrations of reverse transcriptase as low as 5%.
  - Continuously achieved %CV of 5% or less.

- Generated quality specifications for the reverse transcriptase.
- Planned and executed the stability/shelf-life study of the reverse transcriptase.
- Experimental data analysis and SOP development.

#### **System Verification & Validation Engineer, Scientist**

08/2021 – 01/2022

*Thermo Fisher Scientific | South San Francisco, CA*

- Conducted verification/validation tests on the Applied Biosystems SeqStudio Flex Series Genetic Analyzer.
- Documented the verification/validation test results.
- Revised the test protocols and associated documents, 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).
- Proposed and implemented an alternative SEST algorithm in the imaging sensor in development, witnessed significant improvement in the scanning speed while retaining the accuracy.
- Inspected and revised technical translation of imaging device configuration and notification settings for quality assurance.

#### **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.

## **E D U C A T I O N**

#### **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.

- HBSc. in Neuroscience and Cell Molecular Biology with an emphasis on neurobiology, cell biology, and associated pathologies.