

# MICHAEL KOO

Northbrook, IL | (224) 216-3777 | koo.michaelj@gmail.com | www.linkedin.com/in/michael-j-koo

## Biomedical Data Scientist & Software Engineer

### PROFESSIONAL SUMMARY

Results-driven Data Scientist and Software Engineer with 3+ years of specialized expertise in developing computational methods for biomedical applications. Currently finishing a MS in Biomedical Science with concentration in Data Science at the University of Chicago. Research experience in implementing machine learning models for medical applications, including large language models in specialized medical fields. Strong technical foundation in multiple programming languages with a passion for leveraging AI to revolutionize healthcare outcomes.

### AREAS OF EXPERTSE

- **Data Science:** Machine learning, statistical analysis, predictive modeling, LLMs
- **Programming:** Python (Pandas, NumPy, SciPy, Matplotlib, PyTorch), R, Java, JavaScript, C++, SQL
- **Biomedical Focus:** Computational biology, medical imaging analysis, health outcomes prediction
- **Software Development:** Agile methodology, automation, quality assurance

### PROFESSIONAL EXPERIENCE

**Research Assistant, Pepperdine University Keck Data Science Institute, Malibu, CA** January 2022 - July 2024

- Contributed to research publications exploring applications of Large Language Models (LLMs) in specialized medical fields.
- Collaborated with cross-functional team of professors, medical doctors, and students to bridge the gap between open-source and proprietary LLMs for medical applications.
- Developed computational methods for analyzing complex biomedical data sets.
- Implemented machine learning solutions to address healthcare challenges.
- Published research benchmarking open-source large language models, GPT-4, and Claude 2 on multiple-choice questions in nephrology in NEJM AI.

**Fulbright English Teaching Assistant, Fulbright Scholarship Program, Changhua, Taiwan** August 2023 - July 2024

- Implemented data-driven lesson plans and analyzed performance metrics to optimize instruction.
- Developed digital learning tools to facilitate language acquisition.

**Quality Engineering Analyst, Nationwide Insurance, Brea, CA** May 2022 - August 2023

- Led development team for secure payment processing systems implementation
- Created automated testing frameworks to validate website functionality and data integrity
- Applied data analysis techniques to identify and resolve system performance issues

### EDUCATION

**University of Chicago, Chicago, IL** September 2024 - Present

*Master of Science in Biomedical Science, Concentration in Data Science*

**Pepperdine University, Malibu, CA** August 2019 - April 2023

*Bachelor of Science in Computer Science/Mathematics*

### PUBLICATIONS & CERTIFICATIONS

- Wu S, Koo M, et al. "Benchmarking open-source LLMs, GPT-4 and Claude 2 on nephrology MCQs". NEJM AI, 1(2), 2024
- Sean Wu, Michael Koo, et al., "Adversarial Databases Improve Success in Retrieval-based LLMs", arXiv:2407.14609
- Microsoft Azure Fundamentals (AZ-900), Certified (2021 - Present)
- Teaching English as a Second Language, Certified (2023 - Present)