Jon Albo, PhD

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SUMMARY

- 5+ years developing and scaling healthcare data science and analytics workflows in academia and startups with teams from 2 to 20 employees, and $10M+ in funding
- Built a Python framework to clean, analyze, and visualize 150,000 reaction experiments (75M+ data records), discovering 10 new drug candidates and uncovering novel methods for drug compound modification
- Designed workflows to analyze real-world data, including streamlining data retrieval from electronic health records (EHR) to reduce time by ~10 min/case and mapping 11 years of bacterial resistance data to detect temporal trends
- Track record of cross-functional collaboration, project management, and eagerness to continually learn

SKILLS

Programming & Software: Python (numpy, pandas, scipy, matplotlib, seaborn, scikit-learn, umap, Jupyter notebooks), R, SQL, MATLAB, Power BI, Docker, Bash/Zsh, GitHub, LaTeX, Excel

EXPERIENCE

SPOTs Dx | Startup delivering R&D tools for low-cost, large combination drug discovery   Remote/Ithaca, NY
Co-Founder and Data Scientist   June 2022 – Aug 2025
- Developed and launched custom data analysis pipeline of new drug therapies (up to 200,000 combinations) for 9 pharma and academic clients, including QC, reaction classification, and reaction monitoring
- Scaled data analysis and reporting (data visualization) workflows by translating custom scripts (Python/MATLAB) into templates and machine learning frameworks into low-code user interfaces, reducing hands-on time by 50%
- Designed end-to-end data processing and visualization pipeline (including SQL and Power BI), leveraging insights from 100+ user interviews to define metrics, feature requirements, and design considerations
- Led collaborations with 9 research labs to translate early product feedback into roadmap adjustments to execute proof-of-concept pipeline supporting a new AI biological insights product
- Pitched technology to technical and non-technical stakeholders, including 100s of investors and entrepreneurs and 100s of scientists at international conferences

Meinig School of Biomedical Engineering, Cornell University   Ithaca, NY
PhD Research Fellow   Aug 2020 – Aug 2025
- Established Python-based image analysis and visualization framework for 150,000 experiments to extract features describing novel late-stage drug molecule functionalization
- Applied machine learning techniques to discover novel drug therapies from in-house screening of 10,000 experiments
- Integrated 11 years of real-world antimicrobial susceptibility data with clinical site metadata to identify mechanism-based resistance trends across bacterial infections in dogs
- Led workshop on Python-based image analysis and machine learning techniques for team of 4 scientists
- Served as lead teaching fellow for graduate course on life science entrepreneurship, coaching 70 PhD, MBA, and MS students on customer discovery, market validation, and product–market fit
- Leveraged insights from biomedical datasets to author a $2 million NIH grant, enabling development of scalable, automated pipelines for open-source data integration and sharing

Weill Cornell Medicine   New York, NY
Clinical Oncology Data Scientist   May 2021 – Sept 2021
- Streamlined EHR workflows for over 50 clinicians by eliminating redundant data retrieval, enabling physicians to review patient histories 10 minutes faster on average
- Analyzed patient medical records during oncology rounds with a team of over 35 clinicians, identifying key variables and treatment response patterns to adjust first-line treatment based on predicted patient needs
- Collaborated across 3 functional areas (researchers, physicians, and surgeons) to expand data pipelines and resources for advancing personalized medicine treatments

EDUCATION

PhD, Biomedical Engineering, Cornell University   Aug 2020 – Aug 2025

Dissertation: Expanding User-Friendly High-Throughput Liquid Handling Across Life Sciences and Medicine

MS, Biomedical Engineering, Cornell University   2020 – 2023

BS, Chemical Engineering, Florida State University   2016 – 2020

PATENTS

1. Cira, N. J., Tan, S., Shiri, S., Qazi, M. J., **Albo, J.** & Chen, A. 2022. Surface-patterned, omniphobic tiles (SPOTs), fabrication, loading, and use thereof. WO2023091750A1.

SELECTED PUBLICATIONS

1. **Albo, J.**, Tan, S., Shoemaker, A., Hunter, B., & Cira, N. J. 2025. High-throughput screening of oxidation reactions to discover new drug compounds. *Submitted.*

2. Reuter, M. M., Lev, K. L., **Albo, J.**, Arora, H. S., Liu, N., Tan, S., Shay, M. R., Sarkar, D., Robida, A., Sherman, D. H., Richardson, R. J., Cira, N. J. & Chandrasekaran, S. 2024. Ultra-high-throughput screening of antimicrobial combination therapies using a two-stage transparent machine learning model. *bioRxiv*. https://doi.org/10.1101/2024.11.25.625231.

3. **Albo, J.**, Tan, S., Denis, J. D., Franklin-Guild, R., Shiri, S., Sandoz, K. M. & Cira, N. J. 2024. EZ-SPOTs: A simple, low-cost, high-throughput liquid handling platform applied to antimicrobial susceptibility testing of clinical isolates. *bioRxiv*. https://doi.org/10.1101/2024.05.13.594031.

4. Shiri, S., Qazi, M. J., Tan, S., **Albo, J.**, Chen, A., Fukuda, R., Jain, M. S., Nchinda, N., Menesses, M., Ahmed, G., Gallegos, A. O., Gangishetty, M. K., Congreve, D. N. & Cira, N. J. 2024. Surface Patterned Omniphobic Tiles (SPOTs): a versatile platform for scalable liquid handling. *bioRxiv*. https://doi.org/10.1101/2024.01.17.575712.

SELECTED TALKS

1. **Albo, J.**, Tan, S., Reuter, M., Lev, K., Chandrasekaran, S. & Cira, N. J. (Jan 2025). Leveraging Surface Patterned Omniphobic Tiles (SPOTs) to close the loop on drug-focused machine learning predictions. Society of Laboratory Automation and Screening 2025 (SLAS2025), San Diego, CA.

2. Tan, S., **Albo, J.** & Cira, N. J. (Jan 2025). A comprehensive metabolite screening platform based on droplet microarrays. Society of Laboratory Automation and Screening 2025 (SLAS2025), San Diego, CA.

3. **Albo, J.**, Tan, S., Shiri, S., Qazi, M., Chen, A., Fukuda, R., Reuter, M., Lev, K., Gangishetty, M., Congreve, D., Chandrasekaran, S. & Cira, N. J. (Oct 2024). Enabling high throughput data generation with low-cost instrumentation. Invited talk at Future Labs Live 2024, Philadelphia, PA.

4. **Albo, J.**, Tan, S., Shiri, S., Denis, J., Franklin-Guild, R., Sandoz, K. & Cira, N. J. (Jan 2024). A scalable liquid handling platform for high-throughput manipulation of live cell-based assays. Society of Laboratory Automation and Screening 2024 (SLAS2024), Boston, MA.

5. **Albo, J.**, Shiri, S., Qazi, M., Tan, S., Chen, A. & Cira, N. J. (Oct 2022). Surface Patterned Omniphobic Tiles (SPOTs) for Evaluating Antibiotic Pairs on Bacterial Growth. Biomedical Engineering Society (BMES) Annual Meeting, San Antonio, TX.

6. **Albo, J.**, Leonard, J. P. & Elemento, O. (Aug 2021). Patient-derived tumor organoids for high-throughput drug screening. Cornell BME Research Clinical Immersion Symposium, Ithaca, NY.