Spencer Wozniak

586-522-6021 | spencerwozniak1@gmail.com | linkedin.com/in/spencerwozniak | spencerwozniak.com

Aspiring physician driven to guide others through suffering and to advance patient care. With hands-on experience in emergency and behavioral healthcare settings, first-author publications in computational biochemistry and machine learning, full-stack web development expertise, and experience providing individualized MCAT and STEM tutoring, I am passionate about applying science to empower others.

Education

Bachelor of Science in Human Biology, Minor in Bioethics September 2020 - May 2024
Michigan State University | East Lansing, MI **GPA**: 3.91 (Honors) | **MCAT**: 524

Clinical Experience

Applied Behavior Analysis (ABA) Therapist August 2024 – Present
Coyne and Associates | San Diego, CA

- Conducted individualized therapy sessions to help children diagnosed with autism spectrum disorder and other developmental disabilities using evidence-based ABA techniques.
- Implemented targeted interventions to develop functional communication for nonverbal children.
- Taught emotional regulation techniques to reduce negative emotions and challenging behaviors.
- Supported development of gross motor skills through structured play and movement-based activities.
- Collected and analyzed detailed session data in an electronic health record to track client progress, analyze behavioral trends, and refine interventions.
- Collaborated with caregivers to promote consistency across environments, ensure treatment compliance, and maintain behavioral improvements.
- Conducted hands-on training for new ABA therapists using a structured four-phase model.
- Delivered constructive feedback to trainees on clinical performance, professionalism, and data accuracy.
- Collaborated with Regional Directors to monitor trainee progress and ensure adherence to protocols.
- Participated in trainer meetings and contributed to updates in training procedures and clinical standards.

Medical Scribe July 2023 – August 2024
Memorial Healthcare | Owosso, MI

- Assisted several emergency and internal medicine physicians in the ED and ICU by documenting histories, exam findings, procedures, orders, and assessment & plans for up to 20 patients per shift.
- Collected preliminary patient histories and medication lists to improve physician efficiency.
- Interpreted laboratory values to streamline documentation and highlight critical findings.
- Reviewed and abstracted data from medical charts to support clinical decision-making.
- Collaborated with nursing staff to support unit operations, including restocking rooms and delivering comfort items and basic support to patients.

Volunteer Staff September 2022 – April 2023
Sparrow Hospital | Lansing, MI

- Supported nursing staff in an inpatient unit by assisting with up to 40 patients per shift.
- Answered patient call lights to provide timely assistance with comfort, mobility, and basic care needs.
- Sat with patients who had no visitors, offering companionship, emotional support, and conversation during long or isolating hospital stays.
- Measured vital signs, transported patients within the hospital, and observed diagnostic imaging exams.

Research Experience

Research Assistant September 2020 – April 2025
Biochemistry Department, Michigan State University | East Lansing, MI
Advisor: Dr. Michael Feig

- Assisted in study startup activities and research protocol design under Dr. Michael Feig.
- Utilized software including Python, C++, Bash, and Excel to conduct statistical analyses, verify simulation accuracy, and refine artificial intelligence (AI) models to optimize performance.

- Developed AI models including convolutional and graph neural networks, and transformers.
- Curated and maintained large datasets to train AI algorithms for applications in biochemistry.
- Collaborated with interdisciplinary teams to present research findings and refine methodologies.

Publications

- Wozniak S, Janson G, Feig M. Accurate Predictions of Molecular Properties of Proteins via Graph Neural Networks and Transfer Learning. *Journal of Chemical Theory and Computation.* 2025. https://doi.org/10.1021/acs.jctc.4c01682
  - Led the development of an AI algorithm for modeling and analyzing proteins.
- Wozniak S, Feig M. Diffusion and Viscosity in Mixed Protein Solutions. *The Journal of Physical Chemistry B.* 2024. https://doi.org/10.1021/acs.jpcb.4c06877
  - Utilized molecular dynamics simulations to study characteristics of crowded protein systems.

Projects

- *Molecular Dynamics Simulations of Monoclonal Antibodies* (Sep 2020 - Jan 2021)
  - Evaluated the stability and solubility of various monoclonal antibody candidates for treating cancer in physiological conditions.
  - Found the candidates to be structurally unstable and unsuitable for therapeutic use.
  - Presented findings to a collaborator at Florida Atlantic University.

Research Assistant January 2024 – April 2024
Sociology Department, Michigan State University | East Lansing, MI
Advisor: Dr. Stephen Gasteyer

- Designed and launched a research project investigating the social determinants of electronic health record quality, including conducting literature reviews, and compiling and analyzing complex datasets.

Projects

- *The Social Determinants of EHR Quality in US Hospitals* (Jan 2024 – Apr 2024)
  - Compiled data from American Community Survey and American Hospital Association.
  - Explored how social factors relate to electronic health record quality across US hospitals.
  - Calculated odds ratios from a logistic regression to assess statistical significance.
  - Presented a poster at 2024 University Undergraduate Research and Arts Forum at MSU.

Teaching Experience

Founder & Tutor November 2024 – Present
WozPrep (www.wozprep.org) | San Diego, CA

- Founded a private tutoring service with a custom-built website and student-facing tools.
- Conducted 1-on-1 tutoring sessions focused on test strategy, critical thinking, and content mastery.
- Applied the Socratic method to foster deeper student engagement and independent problem-solving.
- Integrated principles of positive psychology to build student confidence and promote motivation.
- Created personalized study plans based on student strengths, weaknesses, and time constraints.
- Helped students improve their MCAT scores by as much as 50 percentile points.
- Utilized Next.js, TypeScript, and React to develop an interactive website with modern UI/UX design to manage client inquiries, promote services, and host content.
- Built a web-based portal for MCAT practice tests and question banks, featuring original questions tailored to AAMC-style reasoning and pacing.
- Leveraged search engine optimization to increase visibility through online outreach.

Certifications

Basic Life Support (BLS) Certification *Issued* February 2025 – *Expires* February 2027
American Heart Association | 255417519570

Awards and Honors

Distinguished Freshman Scholarship *Issued* September 2020
Michigan State University Honors College

- Full-tuition academic scholarship awarded for outstanding academic achievement.

Technical Skills

- **Programming**: Python, JavaScript, TypeScript, C++, Bash, SQL, R
- **Data Analysis**: NumPy, Pandas, SciPy, Matplotlib, Seaborn, scikit-learn, Excel
- **Web Development**: HTML/CSS, React, Next.js, Flask, Vercel, Cloudflare
- **Tools & Platforms**: Git/GitHub, Visual Studio Code, Linux, Jupyter Notebook
- **Artificial Intelligence**: PyTorch, PyTorch Geometric, scikit-learn, Transformers (HuggingFace), Graph Neural Networks (GNN), Multilayer Perceptrons (MLP), Convolutional Neural Networks (CNN), Mixture of Experts (MoE), Transfer Learning (TL), Prompt Engineering, Hyperparameter Tuning, Model Evaluation Metrics
- **Bioinformatics**: BLAST, CHARMM, MDCONV, MMTSB, PyMol, VMD, Biopython
- **Other**: SEO tools, Google Analytics, Command Line Interface (CLI), Markdown