# Oscar Wu

Link to Portfolio Website

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## Programming Skills

- **Languages**: Python, Bash, SQL, Markdown, R **Technologies**: Git, VS Code, Tableau, Obsidian, Zotero

## Publications

- **Zanoaga O, Jurj A, Raduly L, et al.**: Implications of dietary $\omega$-3 and $\omega$-6 polyunsaturated fatty acids in breast cancer. Experimental and Therapeutic Medicine. 2018;15(2):1167-1176. doi:10.3892/etm.2017.5515.

## Honors & Awards

- **National Honors & Awards**: Phi Beta Kappa Honor Society, **National Barry S. Goldwater Scholar** (from **previous research in Dr. Laurie Glimcher's laboratory at Dana-Farber Cancer Institute.**) See here:
- **Research/Service Honors & Awards**: UTSW Medical Student Summer Research Program, Best Poster Award for Community Development/Public Service by the AMA, Outstanding Contribution to the Greater Community Award, 2nd Place Poster at Molecular Neurosciences & Systems: From Nucleotides to Networks Symposium, Best Visual Presenter-Biosciences Division of Gulf Coast Undergraduate Research Symposium, Student Organization of the Year, Raiders Who Rock Cooperation & Communication Award, College Group Get Involved Award, Outstanding Contribution to the Greater Community Award,

## Research Experiences at UT Southwestern Medical Center

- **GPTFusion - AI Chatbot**
  *Multi-Model Integration & Dynamic Interactions* *Dept. of Radiology (2023)*
  - **Document Integration**: Tailored document integration and conversation history management with Gradio, Python, and OpenAI API.
  - **Vector Index**: Efficiently ingested unstructured data from PDFs, CSVs, TXTs, and SQL databases files.
  - **File Subsets**: Enabled users to specify subsets of ingested files for NLP operations.
  - **Conversation History**: Extended GPT API to retain and call prior user-defined prompts and responses.
- **Advanced Facial Image Morphing**
  *Latent Space Interpolation with StyleGAN2 & Dlib ResNET* *Dept. of Radiology (2023)*
  - **Pipeline**: Developed an end-to-end pipeline for smooth morphing video generation.
  - **StyleGAN2**: Produced realistic and high-quality face morphing videos.
  - **Facial Landmark Detection**: Automated detection and cropping for improved compatibility.
  - **Google Colab**: Implemented a seamless pipeline with GPU support for widespread use. Link to notebook
- **Socioeconomic Impact of COVID on Parkland ED Patients**
  *COVID 2020 Time Series Analysis* *Dept. of Global Health (2022)*
  - **Health Equity Index**: Identified areas of highest need to advance equitable outcomes.
  - **Advanced Time Series Techniques**: Used ClaSP segmentation and Dynamic Time Warping for structural changes and optimal alignments.
  - **Population Patterns**: Examined trends during shelter-in-place duration and recovery.
  - **Data Analysis**: Utilized heatmaps, warping path plots, and Pearson correlation for patient data analysis.

## Projects

- **An End-to-End Pipeline for Scientific Writing**
  *Multi-tool and Multi-language Optimization of Literature Reviews* *2023*
  - **Multi-Language Support**: Integrated multiple programming languages (JavaScript, Python, SQL) and research tools (Obsidian, VS Code, Zotero) to create an efficient and unified research workflow.
  - **OCR with PyTesseract**: Extracted corpus of research text from images and PDFs and indexed for quick access.
  - **Links and Knowledge Graph**: Connected notes, visualized relationships, and applied graph algorithms for community detection of important research topics.
  - **Git Synchronization and Ubiquitous Exports**: Automated file sync with Git, GitHub and exported documents linked to BibTeX references in Zotero.

## Education

- **University of Texas at Southwestern School of Medicine** Dallas, TX
  *M.D. Candidate (522/528 MCAT)* *Aug. 2020 – May 2023*
- **Texas Tech University (Combined BA/MD Program)** Lubbock, TX
  *BSc in Microbiology, Summa Cum Laude (3.97/4.00 GPA)* *Aug. 2016 – June 2020*
- **Margaret Long Wisdom High School** Houston, TX
  *Valedictorian, National Merit Finalist (2380/2400 SAT)* *Aug. 2012 – May 2016*