BLAKE **OLSON**

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EDUCATION

Texas A&M University

BS in Computer Science • Minor in Mathematics   **May 2025**

GPA: 3.914/4.0 | CS Honors

Courses: Data Structures and Algorithms, Discrete Structures for Computing, Computer Organization, Programming Languages, Computer Systems, Design and Analysis of Algorithms, Database Systems, Machine Learning, Cloud Computing, Statistics 1&2, Calculus 1-3, Differential Equations, Honors Linear Algebra, Math Probability

Organizations: Sophomores Leading on Promoting Equality, Paradigm: Model Men of Aggieland, Baha'i Unity Club

RESEARCH EXPERIENCE

Texas A&M DIVE Lab   **Feb 2024 – Current**

Machine Learning Researcher | *Python, PyTorch Geometric, Deep Learning, NLP, Linux, AI, ML*   *College Station, TX*

Planning and Reasoning of Language Models (Undergraduate Thesis + ICML Submission)

• Implementation and evaluation of Chain-of-Though, Self-Consistency, and Tree-of-Thought for 6 existing datasets: Blocksworld, AQuA, GSM8K, ProntoQA, StrategyQA, and TripPlan (Natural Plan paper)

• Writing thesis (~5500 words) within Undergraduate Research Scholars Program

• Evaluated 4 different language models: GPT-4o, GPT-4o-mini, LlaMA 3.1-70B, LlaMA-3.1 8B

Fragment and Geometry Aware Tokenization of Molecules using Language Models (ICLR Poster)

• Utilized PyTorch and RDKit to perform 3D molecular alignment and compute shape-based similarity

• Generated 50,000+ ligands utilizing state-of-the-art SBDD deep learning methods (DecompDiff, DrugGPS, FLAG, Lingo3DMol, GraphBP) and evaluated protein pocket binding affinity based on AutoDock Vina scores

• Evaluated protein pocket binding affinity, drug likeliness, synthesizability through Vina, QED, and Lipinksi metrics.

PROFESSIONAL EXPERIENCE

Google   **Fall 2025**

Incoming Software Engineering Intern   *Mountain View, CA*

Apple   **Summer 2025**

Incoming Software Engineering Intern   *Cupertino, CA*

Esri   **May 2024 – Aug 2024**

iOS Software Development Intern | *Swift, UIKit, SwiftUI, VisionKit, Git, ArcGIS, Cocoa Touch, Xcode*   *Vienna, VA*

• Engineered task with no location feature using Swift and UIKit that was deployed to **50,000+** users

• Improved notification reports algorithm efficiency by **24.537%** using hashing and sets

• Implemented data persistence solutions utilizing Core Data and Realm, resulting in **38%** decrease in query time

Dialexa, an IBM Company   **May 2023 – Aug 2023**

Software Engineer Intern | *SQL, PHP, Swift, UIKit, TablePlus, Docker, Postgres, Git, Jira*   *Dallas, TX*

• Embraced an agile workflow with bi-weekly sprints, daily standups, and product demos to Genentech

• Refactored vision diagnosis application using **Swift** to reduce language page load time by over **30%**

• Leveraged Docker, TablePlus and PHP to write SQL for rest API requests consumed by **10,000+ clients**

PROJECTS

Decoder Transformer | *Python, Pytorch, Linux, Anaconda, NLP*   **Jun 2024**

• Developed a robust decoder transformer architecture from scratch with masked multi-headed attention

• Successfully trained on the SCAN dataset using Python and PyTorch, achieving **99.85%** accuracy

• Employed backpropagation, gradient descent optimization, regularization methods, and dropout techniques

ML Fantasy Football Rankings | *React, Python, Javascript, Pandas, Scikit-Learn, ThreeJS*   **July 2023**

• Web scraped 21 years of data using BeautifulSoup/Python and trained 6 different ML models using scikit-learn

• Built backend Rest API with Express.JS that garnered queries from MongoDB through HTTP Requests

• Reduced error, calculated by dividing root mean squared error by average PPR points, to 37.21%

AI Investment Portfolio | *Python, Pytorch, React, Pandas, Scikit-Learn*   **Jan 2023**
  • Used the MERN stack with JavaScript to create a college financial/investment planner website
  • Minimized mean squared error in a CNN to 6.0205×10^{-4} using Python, Keras and scikit-learn
  • Placed **2nd** out of over **151** teams for user experience/user interface at hackathon TAMUHack 2023

ASSOCIATIONS

Paradigm   **Aug 2023 – Present**
Member   **Texas A&M University**
  • Participated in weekly meetings regarding member development and led a resume workshop
  • Raised over $10,000 for our annual philanthropy event to donate to the Leukemia Lymphoma Society

Sophomores Leading on Promoting Equality   **Aug 2022 – May 2024**
Summit Officer   **Texas A&M University**
  • Led weekly meetings (Summits) about racial equality, gender equality, disability equality, and LGBTQ+ equality
  • Participated in planning of 20+ activities that promoted friendships of underrepresented A&M students
  • Organized and led a large fundraising event that helped spread awareness of our pillars

Baha'i Unity Club   **Aug 2021 – Present**
President   **Texas A&M University**
  • Organized four different service projects that aimed to improve the plant life in elderly communities
  • Held social events that promoted discussions of current world issues

SKILLS

Languages: Python, C++, Swift, TypeScript/JavaScript, Java, C, SQL, PHP
Technologies: PyTorch, SwiftUI, UIKit, React, Docker, TablePlus, Express.js, Git, Postgres, Jira, Heroku

HONORS

Nomination for Undergraduate Research Excellence	**2025**
Dean's Honor Roll	**2024**
Computer Science Departmental Scholarship	**2024**
SLOPE Staff Member of The Month	**2024**
TAMUHack 2nd Place for UI/UX	**2023**
Dean's Honor Roll	**2022**

PUBLICATIONS

Parashar, S., Olson, B., Khurana, S., Li, E., Ling, H., Caverlee, J., Ji, S. (2025) **Position: Inference-Time Computations for LLM Reasoning and Planning: A Benchmark and Insights** ICML Submission

Ling, H., Parashar, S., Khurana, S., Olson, B., Basu, A., Sinha, B., Tu, Z., Caverlee, J., Ji, S. (2025) **Complex LLM Planning via Automated Heuristics Discovery** ICML Submission

Fu, C., Li, X., Olson, B., Ji, H., Ji, S. (2025) **Fragment and Geometry Aware Tokenization of Molecules for Structure-Based Drug Design Using Language Models**. ICLR Poster