# ALEC IBARRA

UNIVERSITY STUDENT

## CONTACT


**Phone**
(972) 589-8097

**Location**
Dallas, Texas

**Email**
adibarra00@gmail.com

**GitHub**
github.com/adibarra

**Website**
adibarra.com


## EDUCATION

**May 2025**
**B.S. Computer Science**
University of Texas at Dallas

## PROGRAMMING

- JavaScript
- TypeScript
- HTML / CSS
- Python
- Java
- BASH
- C++
- C#

## TOOLING

- MS Office
- Windows
- Linux
- VSCode
- Git
- Docker
- IntelliJ IDEA
- PyCharm
- Figma
- Blender
- Unity Engine

## HARDWARE

- PC Building
- Raspberry Pi
- Arduino
- ESP32
- VEX Robotics
- Verilog
- Xilinix FPGA
- Multimeters
- NI Multisim

## LANGUAGES

- English
- Spanish

REFERENCES UPON REQUEST

## ABOUT ME

I am a detail-oriented college student with an aptitude for learning, leadership, and teamwork with a drive for solving complex problems. I have previously studied electrical engineering for three years at Texas A&M University before transferring to the University of Texas at Dallas for Computer Science. I am currently seeking a position focused on software engineering, computer engineering, or robotics.

## LEADERSHIP

**Team Lead / Lead Developer** — **2024**
QueryQuest Team, University of Texas at Dallas — Richardson, TX

- Led a team of 6 in the development of a web-based trivia game (semester project), ensuring alignment with project goals and timely delivery.
- Managed the integration of team contributions, ensuring consistent functionality, quality, and seamless collaboration across all components.
- Authored extensive documentation and reports, detailing project architecture, design decisions, and technical processes for clarity and future reference.

**Team Lead / Lead Developer** — **2024**
Fintasy Team, University of Texas at Dallas — Richardson, TX

- Led a team of 7 members, taking charge of the design, architecture, and technical development of a paper trading platform (semester project).
- Directed frontend and backend development efforts, ensuring seamless integration, timely feature delivery, and extensive documentation.
- Managed team coordination, driving progress, resolving conflicts, and ensuring alignment with project goals and deadlines for successful delivery.

**Team Co-Lead** — **2019 - 2021**
TIDAL Special Projects Team, Texas A&M University — College Station, TX

- TIDAL performs research into machine learning, engaging students in projects that address real-world challenges.
- Worked on building machine learning models to judge a storm's severity from limited data, such as lightning strikes.
- Identified, collected, and processed candidate data, including lightning strikes and other environmental factors, to create clean, structured datasets for effective model training, evaluation, and performance optimization.

## WORK EXPERIENCE

**Systems Engineering Intern** — **Summer 2019, 2021-22**
Filtros y Aceites S.A. de C.V. — Tampico, Mexico

- Diagnosed and resolved hardware and software issues across diverse equipment, ensuring minimal downtime for a mid-size corporation.
- Assisted in the development of an in-house inventory management system, enhancing tracking and operational efficiency.
- Collaborated with the IT team to document troubleshooting procedures and streamline system maintenance.

**HP Virtual Internship** — **Summer 2020**
HP Inc. — Plano, TX

- Analyzed customer needs and identified potential solutions in presales and digital sales simulations, developing skills in problem-solving and effective communication.
- Collaborated with peers from diverse backgrounds on real-world business challenges, fostering teamwork and adaptability in a virtual environment.
- Gained insights into tech industry roles through mentorship from HPE professionals and hands-on participation in industry-focused tasks.

CLICK FOR MORE DETAILS

# ALEC IBARRA

UNIVERSITY STUDENT

## HARD SKILLS

**Development & Architecture:**
- Full Stack Development
- Frontend & Backend Dev
- Web Development
- API Design & Development
- Test-Driven Dev (TDD)
- CI/CD & DevOps
- Containerization (Docker)
- Git & Version Control
- Software Architecture

**Cloud & Scalability:**
- Cloud Computing Arch.
- Scalability & Perf. Optimization
- Load Balancing & Fault Tolerance

**Data & Machine Learning:**
- Machine Learning & AI
- Data Modeling & Optimization
- SQL (MySQL, PostgreSQL)

**UI/UX & Design:**
- UI/UX Design
- Responsive Web Design
- Tailwind CSS, Vue.js
- Web Design (CSS, HTML)

**Security & Performance:**
- Secure Coding & Authentication
- Monitoring & Logging
- Debugging & Troubleshooting

**Other Skills:**
- Computer Vision
- Natural Language Processing
- Shell Scripting & Linux
- Technical Documentation
- OOP & Functional Programming

## SOFT SKILLS

**Leadership & Teamwork:**
- Team Leadership
- Cross-functional Collaboration
- Delegation & Task Management

**Communication:**
- Effective Communication
- Technical Documentation & Reporting

**Problem-Solving:**
- Critical Thinking
- Troubleshooting & Debugging
- Decision-Making Under Pressure

**Time Management & Productivity:**
- Prioritization
- Deadline Management
- Self-motivation & Initiative

**Learning & Growth:**
- Continuous Learning
- Self-Improvement
- Willingness to Adapt & Learn

REFERENCES UPON REQUEST

## PROJECTS

CLICK TO VIEW ON GITHUB

### TAMU Grades — 2022 - Present

- Built a web app to scrape, parse, process, and render information about courses and grade distribution data from Texas A&M's Registrar's Office.
- Designed and optimized a relational database schema to efficiently store and query over 181,000 course sections, 12,000 courses, and 8,000 professors.
- Currently processes requests generated by over 5.7k unique users per month with an average latency under 50ms.
- **Utilized Skills**: Full-stack development, database design and optimization, unstructured data extraction and processing, UI/UX design, containerization.
- **Built using**: TypeScript, Vue.js, Fastify, PostgreSQL, Docker, Alpine Linux, Cloudflare, Vite, Vitest, Jest, Git.

### HCR-CNN — 2024

- Developed a convolutional neural network (CNN) model to classify handwritten digits and letters from MNIST and EMNIST datasets, achieving up to 99.61% validation accuracy on digits.
- Used Hyperband for hyperparameter tuning, optimizing performance across multiple datasets (MNIST, EMNIST Digits, EMNIST Balanced).
- Conducted data preprocessing and augmentation to improve generalization, addressing challenges with character orientations (e.g., digits 6 and 9).
- Trained over 17,000 models with a total of ~367 hours of computation, analyzing results to determine optimal model configurations.
- **Utilized Skills**: Deep learning, convolutional neural networks, hyperparameter tuning, data preprocessing, model evaluation, data augmentation.
- **Built using**: Python, TensorFlow, Keras Tuner, Jupyter Notebooks.

### Fintasy — 2024

- Collaborated on the development of a paper trading platform with competitive social features using real-time stock market data.
- Developed a responsive, scalable frontend, ensuring cross-platform compatibility, fast performance, and faster load times through static file hosting, CDN integration, and optimized resource delivery.
- Designed and implemented RESTful APIs to ensure efficient backend communication, optimizing data retrieval and performance.
- **Utilized Skills**: Full-stack development, database design and optimization, UI/UX design, modular architecture, API development.
- **Built using**: TypeScript, Python, Vue.js, FastAPI, Flask, PostgreSQL, Docker, Alpine Linux, Cloudflare, Vite, Vitest, Jest, Git.

## RELEVANT COURSEWORK

**Artificial Intelligence & Machine Learning**
- **Introduction to Machine Learning**: Supervised and unsupervised learning, model evaluation, feature selection, overfitting, and cross-validation techniques.
- **Human Language Technologies (Natural Language Processing)**: Focus on large language models (LLMs), including fine-tuning for tasks.
- **Introduction to Computer Vision**: Image processing, object detection, feature extraction, and basic computer vision algorithms.

**Software Development**
- **Software Engineering**: Software design principles, development methodologies, testing strategies, version control, and project management practices.
- **Programming Language Paradigms**: Exploration of functional, procedural, and object-oriented programming, along with their design principles and trade-offs.

**Systems & Architecture**
- **Systems Programming in UNIX**: Shell scripting, system calls, process management, memory management, and inter-process communication.
- **Computer Architecture**: In-depth study of processor components, memory hierarchy, pipelining, caching, and hardware subsystems.
- **Digital Logic and Computer Design**: Design and analysis of digital circuits.

**Data & Algorithms**
- **Database Systems**: Relational databases, SQL, schema design, query optimization, indexing, transaction management, and performance tuning.
- **Data Structures and Introduction to Algorithmic Analysis**: Core data structures, algorithm efficiency, complexity analysis, and practical problem-solving techniques.
- **Advanced Algorithm Design and Analysis**: Optimization techniques, graph theory, computational complexity, and advanced problem-solving strategies.

CLICK FOR MORE DETAILS