ALEC IBARRA UNIVERSITY STUDENT



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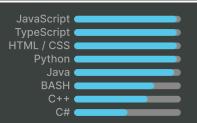
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EDUCATION

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

PROGRAMMING





TOOLING





HARDWARE



A LANGUAGES

Spanish



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 QueryQuest Team, University of Texas at Dallas

2024 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 Fintasy Team, University of Texas at Dallas

2024

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.

2019 - 2021 **Team Co-Lead** 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 Filtros y Aceites S.A. de C.V.

Summer 2019, 2021-22 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 HP Inc.

Summer 2020 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.





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 & Al
- 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



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.

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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.