Simon Vega

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SUMMARY

Computer Science student with nearly two years of supervised research and project experience building C# .NET desktop applications for real-time, data-intensive workflows. Brings hands-on work across WPF, WinForms, MVVM, **object-oriented programming**, design patterns, Git, NUnit, unit testing, and **integration testing**. Built interfaces that display simulated market data, order states, alerts, and connection health, then improved usability through clearer feedback and recovery paths. A 3.72 **major GPA** reflects a strong base in algorithms, concurrency, data structures, and analytical problem solving. Enjoys working closely with technical teammates, presenting design choices, and learning from user needs. Ready to contribute during a 10-week Agile/Scrum internship with Traders, Quants, and **Software Engineers** while growing through feedback, training, and hands-on ownership.

EDUCATION

Bachelor's Degree in Computer Science 2028

Northwestern University GPA: 3.72 *Evanston, IL*

Coursework: *C# programming, .NET application development, object-oriented programming, algorithms and data structures, software testing*

TECHNICAL SKILLS

- **Programming Languages:** C#, object-oriented programming, interfaces
- **Desktop Frameworks:** .NET Framework, WPF, WinForms
- **Architecture Patterns:** MVVM, observer pattern, factory pattern
- **Testing Frameworks:** NUnit, unit testing, integration testing
- **Version Control:** Git, feature branches, pull requests
- **Software Design:** Encapsulation, inheritance, dependency injection
- **Real-Time Systems:** Event queues, message replay, connection health
- **Trading Interfaces:** Option quotes, order states, risk-limit alerts
- **Development Practices:** Agile, Scrum, code reviews
- **Quality Engineering:** End-to-end testing, test scenarios, defect tracing
- **Data Structures:** Algorithms, concurrency, timestamped messages

SKILLS

- C#
- .NET Framework
- WPF
- WinForms
- Git
- NUnit
- Unit testing
- Integration testing
- Object-oriented programming
- Design patterns
- MVVM
- Debugging
- Data structures
- Algorithms
- Agile/Scrum

EXPERIENCE

C# .NET Software Engineering Research Assistant

September 2025 - Present

University Market Systems Lab *Evanston, IL*

Supports a faculty-supervised market-systems study through **WPF** desktop development, simulated quote workflows, test automation, and team design reviews. Owns interface and reliability improvements that help researchers inspect real-time behavior with clearer feedback and repeatable validation.

- Developed a **C# .NET** WPF **desktop** prototype showing simulated option quotes, order states, and connection health for market-systems research.
- Applied **MVVM**, observer, and factory patterns to separate interface behavior from pricing-feed simulation, simplifying reviews and future changes.
- Built **NUnit** unit tests for quote validation, order-state transitions, and stale-data handling, then documented gaps for weekly lab decisions.
- Created an integration-test harness replaying 50,000 timestamped messages, exposing sequencing defects before faculty demonstrations.
- Used **Git** feature branches, pull requests, and concise design notes across a four-person research team, keeping changes visible and reviewable.
- Presented latency findings and usability observations to faculty and six student researchers, leading to clearer status indicators and a simpler recovery workflow.

C# .NET Desktop Software Engineering Project

January 2025 - August 2025

Northwestern University Capstone

Evanston, IL

Worked on a supervised five-person capstone team building a WinForms interface for simulated market activity. Contributed application structure, event handling, testing, source control, and user-focused revisions that made demonstrations easier to follow under volatile scenarios.

- Designed a **WinForms** application for monitoring simulated equities, order tickets, and risk-limit alerts during volatile test scenarios.
- Implemented **C#** classes for quote normalization, command handling, and validation with encapsulation, interfaces, and **dependency injection**.
- Created a responsive update queue that separated market-feed events from interface rendering during replay of 12,000 events.
- Authored NUnit and end-to-end tests for invalid orders, disconnected feeds, duplicate messages, and boundary values, catching failure paths early.
- Managed Git history through issue-linked commits, code reviews, and release tags that supported milestone grading and final evaluation.
- Presented the application to a faculty panel, then converted feedback into keyboard shortcuts, clearer error messages, and a consolidated activity view.

C# .NET Application Development Student

September 2024 - December 2024

Northwestern University Student Lab

Evanston, IL

Completed supervised desktop application work in an object-oriented design course, with focus on reusable **C# .NET** components, **WPF** interaction patterns, local data handling, and test-driven review. Delivered a documented application while learning how architecture choices affect maintainability and user response.

- Built a C# .NET WPF inventory-monitoring application with reusable components and maintainable **desktop** interaction patterns.
- Modeled domain objects with interfaces, inheritance, and the strategy pattern, supporting multiple alert rules without duplicated logic.
- Connected interface behavior with a local data service and validated incomplete records, malformed inputs, and unavailable data conditions.
- Wrote NUnit tests for core services and evaluated functional behavior across 38 instructor-provided scenarios.
- Maintained Git branches, clear commit messages, and a README covering setup, architecture, and known limitations.
- Presented design tradeoffs and a live demonstration to 24 students, incorporating peer feedback into the final interface and technical report.

PROJECTS

Market Data Workflow Simulator 2025

Built a separate C# desktop simulator that modeled quote updates, order states, and connection events. Focused on readable operator feedback, event sequencing, and testable boundaries so users could review market-style workflows without live trading access.

Desktop Resilience Test Harness 2025

Created a replay-focused test utility for timestamped messages, disconnected feeds, duplicate events, and stale data. Clear failure output helped student developers trace defects and discuss recovery choices during technical reviews.

LEADERSHIP & AWARDS

- Dean's List, Northwestern University - Fall 2025
- Computer Science Department Undergraduate Research Scholarship - 2025
- Capstone Design Showcase, Best User Interface Demonstration - 2025

CERTIFICATIONS

- Microsoft Learn: Build .NET Applications with C# 2026
- Microsoft Learn: WPF Desktop Application Development Fundamentals 2026

PROFESSIONAL AFFILIATIONS

- Student Lead, Northwestern Software Design Study Group - 2025 - Present
- Member, Association for Computing Machinery Student Chapter - 2024 - Present

LANGUAGES

- English (Native)
- Spanish (Proficient)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST