ANDREW C. PHOTINAKIS

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OBJECTIVE

Computer Science & Finance student (BS/MS) at RIT graduating December 2026, with concentrations in AI, machine learning, and distributed systems. Seeking a Software Engineering Internship to apply experience in scalable systems, cloud platforms, and AI-driven applications to deliver impactful, high-performance solutions.

EDUCATION

Rochester Institute of Technology   **Rochester, NY**
Master of Science in Computer Science   *Expected December 2026*
Bachelor of Science in Computer Science   *December 2025*
Minor in Finance
- Awards/Honors: RIT Presidential Scholar & Dean's List
- Organizations/Clubs: Computer Science Community, Financial Management Association, Intramural Soccer
- RIT Employment: Calculus Teaching Assistant (August 2022 – January 2023)

SKILLS & LANGUAGES

- **Languages:** Java, C, C#, C++, Python, TypeScript, SQL, Bash
- **Frameworks & Libraries:** Spring Boot, .NET Core, React, Angular, Next.js, Node.js, FastAPI, Flask, TailwindCSS, Maven, JUnit, PyTest, Selenium, Pandas, NumPy, Matplotlib, Scikit-learn, TensorFlow, PyTorch
- **Cloud Platforms & Tools:** Azure Functions, Azure Data Factory, Google Cloud Platform, Power Automate
- **Databases:** PostgreSQL, MongoDB, BigQuery, MySQL
- **AI/ML & Data Science:** Vertex AI, Generative AI, Reinforcement Learning, Keras

WORK EXPERIENCE

Software Engineer & Cyber Risk Consulting Intern | *PricewaterhouseCoopers (PwC)*   *June 2025 – August 2025*
- Accelerated **AI-driven document processing pipeline by 2x** through consolidating **Python** and **.NET** workflows into a unified **C# (.NET Core)** system, improving reliability and maintainability for **LLM orchestration and YAML validation**.
- Boosted dashboard refresh speed and accuracy by designing a modular **Angular** frontend integrated with **Node.js** and **BigQuery**, enabling real-time metric visualizations in **Google Cloud Console** for faster business insights.
- Reduced manual setup time by **90%** with a cross-platform **Avalonia UI** automation tool and cut **Vertex AI** YAML hallucinations by **80%** by implementing robust **prompt-safe schema constraints**, enhancing overall system stability and user trust.

Software Engineering Co-op | *TechSource, Inc.*   *January 2024 – December 2025*
- Led development of a fully automated **Java** data pipeline on **Azure Function Apps**, slashing execution time by **98%,** improving data accuracy and flexibility, reducing operational costs, and automating daily execution reports sent to business stakeholders, enhancing transparency and operational oversight.
- Integrated **Swagger** and **SOAP APIs** with modular **Java** libraries to achieve **99%** data transfer accuracy and streamline complex data extraction and transformation workflows, enabling more reliable downstream analytics.
- Created reusable, responsive UI components with **TypeScript**, **TailwindCSS**, and **Next.js** for the U.S. Department of Energy's **GPT-4-powered AI platform**, enhancing user experience and boosting frontend performance.

Software Engineering Co-op | *Herrick Technology Laboratories*   *May 2023 – August 2023*
- Developed a dynamic linking library using **Boost C++** and **DLL** interfaces to integrate HTL radios with third-party software, improving **Vita49 stream generation** and data capture reliability by **50%**, enabling more robust real-time radio communications.
- Optimized cross-system data flow and reduced integration errors by refining radio-software interface protocols and collaborating with industry partners, resulting in smoother data transmission and enhanced system stability.
- Automated functional and regression UI testing using **Selenium** and **PyTest**, increasing testing efficiency by **80%** and ensuring consistent service reliability across integrated HTL applications.

PROJECTS

SBMPI Blockchain Simulator | *C++17, MPI, OpenMP, PBFT, secp256k1, CMake, Python, Bash*   *October 2025 – December 2025*
- Engineered a **high-performance distributed** blockchain simulator in **C++17** using **MPI** to parallelize transaction validation and consensus across independent shards, leveraging a hierarchical architecture of Shard Leaders and a Final Committee to achieve horizontal scalability.
- Implemented the **Practical Byzantine Fault Tolerance (PBFT)** consensus algorithm with a 3-phase commit protocol and quorum enforcement, ensuring system liveness and safety while coordinating block finalization across multiple process-isolated committees.
- **Parallelized transaction verification** within individual nodes using **OpenMP** and the **secp256k1** library, significantly reducing block validation latency and increasing throughput under **high-frequency transaction** loads.

RDT Email Service | *Python, RDT 3.0 (UDP), Sockets, Threading, SMTP, POP3, PyTest, Make, Black*   *August 2025 – December 2025*
- Achieved **100% packet delivery reliability** over simulated lossy **UDP** channels by implementing a custom **RDT 3.0** transport layer featuring **CRC32** checksums, alternating-bit sequence numbering, and automatic retransmission logic.
- Scaled server throughput to support multiple concurrent **SMTP** and **POP3** sessions by architecting a **non-blocking RDTDispatcher** and a **ThreadPoolExecutor** to decouple **network packet** ingestion from expensive application-layer processing.
- Eliminated mailbox data corruption during **high-concurrency** stress tests by developing a **thread-safe persistence layer** utilizing **atomic** os.replace move semantics and granular per-user resource locking.