Nadine Chernova

GHC 2025 Scholar
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SUMMARY

Technical Program Manager with Software Engineering background (M.S. Computer Science, Dec 2026) and experience coordinating delivery of AI-based software in academic research and project environments. Strong foundation in software development lifecycle (**SDLC**), **Agile** execution, and **quality-driven development**. Hands-on experience with **Python, C++, C#, Java, and JavaScript,** as well as **CI/CD** pipelines, and **containerized environments**. Familiar with using **Jira** and **Confluence** for planning, tracking, and documentation. Currently working on multimodal AI systems using retrieval-augmented generation (RAG). Proactive communicator focused on driving execution, managing risks, and enabling reliable software outcomes.

EDUCATION

M.S. in Computer Science, Seattle University
Relevant Coursework: Artificial Intelligence, Parallel Computing, Computer Networks, Distributed Systems, Computer Graphics, Software Testing and Debugging, Software Architecture and Design, Fundamentals of Software Engineering.

Master's Degree in Project Management, National Research University - Higher School of Economics
Skills: PMBOK, Agile & Scrum, Lean methodologies, Strategic thinking, Problem-solving, Budgeting, Stakeholder & Risk Management, Time Management.

Graduate Certificate in Computer Science, Seattle University
Relevant Coursework: Data Structures, Algorithms, OOP, Database Systems, Computer Architecture & Assembly.

WORK EXPERIENCE

Seattle University, Graduate Researcher, Computer Science Jan 2026 - present

- Investigating technical constraints of deploying AI-assisted software on resource-constrained devices (smart glasses), including compute capacity, latency, battery life, and sensing accuracy.
- Developing full-stack prototypes for contextual guidance and quality evaluation.
- Designing data ingestion and retrieval pipelines using relational and vector databases to support adaptive inference workflows.
- Coordinating tasks with faculty advisors and industry collaborators to define system requirements and evaluate usability, reliability, and safety.
- Tracking milestones, documenting system architecture, and reporting technical risks and progress.

Seattle University, Teaching Assistant, Computer Science Department July 2025 - Sep 2025

- Supported 30+ graduate students in mastering Java-based CS fundamentals, algorithms, and OOP concepts; provided structured debugging guidance and feedback to improve code quality.
- Graded 60+ assignments and provided consistent debugging guidance and feedback.

St.Francis House Seattle, Software Engineer Intern Jun 2024 - Oct 2024

- Led the development of a new report-generation system using **Next.js, TypeScript, React Query, and Firebase**. The system is used daily by 5+ staff and eliminated manual report preparation, improving efficiency by 100%.
- Designed and implemented a transparent mechanism for issuing ORCA cards and other products, introducing eligibility timers that activate only when items are available, eliminating manual page lookups, and reducing staff workload by 80%.
- Expanded automated tests to improve reliability and ensure accurate countdown functionality.
- Partnered directly with the client to gather requirements, propose improvements, and present solutions, ensuring alignment with organizational needs.

Epam Systems, Junior Software Developer Aug 2022 - May 2023

- Contributed to the Data Catalog platform, building a modern frontend interface to help teams discover and manage data assets across the organization, using **React.js, TypeScript, and REST APIs.**
- Developed reusable UI components with **MUI** and improved UX consistency across modules.
- Collaborated with designers and backend engineers to implement new features and improve user experience.
- Fixed 25+ bugs and optimized frontend load performance by 15% using **Webpack and Chrome DevTools.**
- Participated in Agile ceremonies, including daily stand-ups, sprint planning, and code reviews.
- Wrote clean, maintainable code and followed best practices in testing and version control (**Git)**.

UMC, Project Lead Sep 2013 - Jul 2022

- Drove $10M in annual profit through strategic project management, stakeholder alignment, and cross-functional coordination.
- Secured R&D investments and led a 10+ member team to deliver projects on schedule and within budget.
- Recognized 3x by the Board Chairman for outstanding leadership in investment strategy, execution, and innovation.

PROJECTS

MarkItDown (Microsoft Open-Source Project), Contributor Oct 2025 - present

- Contributing to Microsoft's open-source MarkItDown library, which converts complex document formats (DOCX, PPTX, XLSX, PDF) into Markdown for downstream use in LLM-based applications.
- Implementing unit and integration tests using Pytest, including mocking and parameterized test cases, to improve correctness and edge-case coverage.
- Improving CI/CD reliability with GitHub Actions and collaborating with maintainers through pull requests and code reviews.

Skills: Python, Pytest, GitHub Actions, Open-Source Collaboration

AI Learning Platform with XR interface Dec 2025 - present

- Building a full-stack AI-assisted learning platform with a React-based web interface and a Unity-based XR interface.
- Designing and implementing a Retrieval-Augmented Generation (RAG) pipeline to generate adaptive study content from structured and unstructured sources.
- Developing backend APIs and data storage using PostgreSQL and a vector database Qdrant to support semantic search and personalized content delivery.

Skills: Python, C#, FastAPI, LangGraph, React, Qdrant, PostgreSQL, Temporal, RabbitMQ, Unity 6

Parallel Computing with Pthreads, MPI, and CUDA Jan - Mar 2025

Implemented parallel algorithms for high-performance computing tasks across multiple architectures:

- Developed K-Means Clustering on the X11 color set using MPI for distributed memory systems.
- Built a parallel bitonic sort and dissemination prefix scan on a large CSV file (millions of (x, y) pairs) using CUDA for GPU acceleration.
- Implemented parallel scan and reduce operations using Pthreads on shared memory systems.

Skills: C/C++, MPI, CUDA, Pthreads, Parallel Algorithms, High-Performance Computing (HPC).

Airbnb-inspired System (Web Prototype) Mar 2025

Collaborated with a team to design and prototype a web-based rental platform (Airbnb-style), focusing on booking and listing functionalities.

- Built a RESTful API with Swagger docs and tested using Postman.
- Implemented role-based access control, session-based authentication, and secure endpoints.
- Designed system architecture and behavior using UML diagrams, created detailed technical documentation.
- Applied Repository, MVC, Unit of Work, Middleware, DTO, and Dependency Injection patterns.

Skills: C#, ASP.NET, PostgreSQL, REST APIs, Docker, Swagger, Postman

Distributed Banking Transactions (2PC protocol in C++) May - Jun 2024

Developed a transaction system using C socket calls, with the client as a transaction coordinator managing the 2PC protocol. It initiates transactions, gathers participant votes, and decides to commit or abort. Each server represents a bank, listening for transaction requests and responding as needed.

Skills: C++, TCP/IP sockets, 2PC (2-phase commit) protocol.

Computer Graphics Projects Oct - Dec 2024

Applied transformations, shading, texturing, and animation to 2D and 3D objects; worked with smooth and bumpy meshes, hierarchies, curves, tessellation, and anti-aliasing.

Skills: C++, OpenGL, GLSL, transformations, shading, texture, bump mapping, anti-aliasing, widgets, meshes, parametric curves, patches, animation.

SKILLS

Languages & APIs: Python, JavaScript, TypeScript, Java, C++, C#, REST APIs, FastAPI.
Databases: MySQL, PostgreSQL, Firebase (NoSQL), vector databases (Qdrant, ChromaDB)
Cloud & DevOps Tools: Microsoft Azure (Entra ID, SQL Database, Blob Storage, Virtual Machines), AWS (basic), CI/CD, Git, GitHub, Docker, Linux, Bash.
AI & LLM Systems: Retrieval-Augmented Generation (RAG), semantic search pipelines, LLM tooling
Graphics & XR: Unity, OpenXR, Meta Quest 3, OpenGL, GLSL, Rendering pipeline, shaders, rasterization, tracing.
Project Management & Collaboration: Agile & Scrum, Kanban, SDLC, Jira, Confluence, Slack, cross-functional teamwork