

# John N. Nguyen

+1 (717) 350-3843 • johnnguyen4501@gmail.com • johnnhatnguyen.com

## EDUCATION

### Pennsylvania State University

August 2021—May 2025

B.S. in Computer Science

GPA: 3.5/4.0

**Relevant Coursework:** Net-Centric Computing, Object Oriented Programming with Web-Based Applications, Programming and Computation II: Data Structures, Computer Organization and Architecture

## PROJECTS

### Hustle Social Media App (Capstone)

December 2024—Present

- Built a social media app for IOS and Android in React Native for users to advertise quick-gig jobs and services, winning 1<sup>st</sup> place in Penn State Harrisburg's 2025 Capstone Design Conference for the Department of Computer Science
- Reduced LLM token retention rates by 10-18%, using NLP to improve response times and cost for both external APIs and self-maintained hardware
- Implemented real-time updates and communication using sockets, allowing seamless synchronization of job progress, user messages, and financial transactions across multiple clients
- Optimized app performance to improve user experience with frontend techniques including global state management, optimistic updates, query optimization, and animations
- Containerized the development environment with Docker for code portability, consistency, and ease of collaboration

### HackPSH | [iee.hackpsh.org](https://iee.hackpsh.org)

August 2023—December 2024

- Developed a full-stack hackathon management platform in NextJS serving 100+ students, allowing event administrators to handle user registration, team formations, and scoring for Penn State Harrisburg's IEEE hackathons
- Enhanced site performance by 20%, utilizing server-side rendering and server components to reduce page load times
- Optimized a PostgreSQL database with an ORM for scalability, implementing indexes and normalization to handle growing user activity and posts
- Developed an Express-based backend with tRPC for streamlined and type-safe client-server communication
- Designed responsive and accessible user interfaces using Tailwind, applying principles of UI/UX design

### Census Data Visualizer

August 2023—August 2023

- Designed a US Census data visualizer using React and D3.js, enabling users to analyze US population trends and insights by mapping large datasets into 2D vectors
- Processed and cleaned large datasets to enhance data handling and improve rendering performance
- Implemented dynamic filtering functionality with custom components, allowing users to adjust data based on a customizable date range

### Audio Aura | [audioaura.onrender.com](https://audioaura.onrender.com)

May 2023—July 2023

- Created a full-stack web application in React that allows Spotify users to analyze their music listening trends, providing interactive data visualizations and personalized insights inspired by Spotify's annual Wrapped feature
- Built a backend with API routes in ExpressJS, managing user authentication and data through the Spotify Web API

## SKILLS

**Languages:** JavaScript/Typescript, Python, C++, Java, SQL

**Frameworks:** HTML, CSS, React, React Native, NodeJS, ExpressJS, FastAPI

**Tools/Technologies:** Git, GitHub, Tailwind, tRPC, VSCode, Docker, Postman, Figma

## ACTIVITIES

### Computer Science Lead | IEEE (Institute of Electronic and Electrical Engineers)

September 2023—April 2025

- Led the technical development team for 3 semesters, overseeing the design and maintenance of a web platform used for Penn State Harrisburg's IEEE hackathons
- Recruited and mentored underclassmen and new members to enhance their skills and involvement in the organization, providing guidance on software development, best practices, and project contributions