Nina Gruteser

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Education

Purdue University (GPA: 3.93/4.00) West Lafayette, IN

Bachelor of Science in Computer Science Honors and Artificial Intelligence *Aug. 2023 – May 2027*

- **Awards**: College of Science Dean's List & Semester Honors (Fall 2023, Spring 2024, Fall 2024, Spring 2025), NSF Student Travel Grant Award (IEEE/ACM CHASE 2022)
- **Courses**: Data Mining & Machine Learning, Systems Programming, Competitive Programming, Data Structures & Algorithms, Data Engineering in Python, Computer Architecture, Artificial Intelligence Basics, C Programming, Foundations of Computer Science, Probability Theory, Intro to Statistics, Linear Algebra, Multivariable Calculus

Experience

Software Engineering Intern June 2025 – August 2025

Capital One *Richmond, VA*

- Increased flexibility and efficiency of Apache Spark AI data pipelines to migrate datasets into a new schema for use by 5,000+ ML models
- Streamlined the data transformation process by building a Scala abstraction layer enabling one executable to perform dataset-dependent SQL transforms across multiple datasets

Undergraduate Teaching Assistant August 2024 – Present

Purdue University *West Lafayette, IN*

- Served as a Teaching Assistant for the Programming in C course, assisting 600+ students
- Held office hours and lab sections, answered students' questions on the online discussion forum, graded homework, and helped students complete homework and prepare for exams

Simons Research Fellow June 2022 – August 2022

SUNY Stony Brook *Stony Brook, NY*

- Created a semi-automatic 3D segmentation model for head and neck tumors in PET Scans by pre-processing data and developing a CNN, which performs better than previous fully automated segmentation approaches
- Resulted in publication and conference presentation of findings for 100+ researchers at Connected Health: Application, Systems, and Engineering Technologies (CHASE) '22 [1]

Projects

Shell | *C++, Yacc, Lex* March 2025 – April 2025

- Implemented a Unix-style shell capable of parsing and executing commands and arguments using system calls
- Integrated support for advanced features including: ctrl-c, zombie process handling, quotes, escaping, builtin functions, environment variables, subshells, wildcarding, and history

SimpleC Compiler | *SimpleC, Yacc, Lex* November 2024 – December 2024

- Built a compiler that parses C code into x86 Assembly Language using Context-Free Grammar
- Implemented parsing for relational and arithmetic expressions, conditional statements, logical operators, loops, function calls, short circuit logic, and more using Yacc

Cover Palette | *Python, Django, Spotify WebAPI, OpenAI API, HTML/CSS* September 2023 – December 2023

- Developed a Generative AI playlist cover image generator, where users can obtain unique images for their playlists
- Implemented procedure that takes a Spotify playlist URL and extracts features of the songs in the user's playlist
- Created image generation prompt formula, which is sent to DALLE to create three unique images that match the musicality of the given playlist and get visualized on the website

Publications

[1] Nina Gruteser. "Head and Neck Tumor Segmentation With Sliced 3D PET Scans". IEEE/ACM CHASE 2022

Skills

Programming Languages: Java, Python, C/C++, JavaScript, HTML/CSS, x86 Assembly Language, R, Linux, Scala
Frameworks: Tensorflow, Django, Node.js, Flask, JUnit, Flutter, Keras
Developer Tools: Git, AWS, Google Cloud Platform, VS Code, IntelliJ, Jupyter Notebook
Libraries: PyTorch, pandas, NumPy, Matplotlib, OpenCV, Scikit-learn, BeautifulSoup
Languages: English (Native), German (Fluent), Korean (Proficient), Spanish (Proficient)