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Education:

08/2024 – 05/2025 **University of South Carolina Beaufort (USA)**
 Master of Science in Computational Science
 08/2020 – 05/2024 **University of South Carolina Beaufort (USA)**
 Bachelor of Science
 in Computational Science, GPA: 3.988 (Summa Cum Laude)
 09/2015 – 07/2020 **Higher Technical Federal Education and Research Institution Mödling**
 Department of Electronics and Technical Informatics (Summa Cum Laude)

Skills:

Environments: Mac, Windows, and Linux
 Programming Languages: Python (PyTorch, SimPy, scikit-learn, NumPy, Keras, Tensorflow), Java, C#, C++, C, Assembly, Visual Basic / VBA, R, MATLAB, SQL, Technische Alternative
 Front-End Web Development: HTML, CSS, JavaScript (plain-vanilla, jQuery)
 Back-End Web Development: SQL, PHP
 Development Tools: Git, GitHub, Plastic SCM (Unity Version Control System), Bitbucket, Visual Studio, VS Code, BBEdit, Brackets, NetBeans, Eclipse, Docker, Shortcut (Jira alternative), Unity, MATLAB, R-Studio, SSMS

Experiences & Appointments:

GA, Cyber Lab Assistant, Spring 2025 In this role, I provided support to faculty teaching in the Cyber Lab at USCB. Specifically, I maintained the dedicated networking equipment in the lab and supported faculty with creating and holding labs.
 GA, Data Analyst, Fall 2024 During Fall 2024, I worked as a Graduate Assistant for Dr. John Thrasher at USCB. My task was to work with his Walk on Subdomain algorithm and find ways to predict restart points. For this purpose, I worked with USCB's HPC server and I am super excited to share my findings in my Master's thesis.
 Mandatory Service with Austrian Military, May 2024 – November 2024 After receiving my Bachelor degree from the University of South Carolina Beaufort at the beginning of May 2024, I immediately joined the Austrian military the week after in order to complete my mandatory service. During this time, I learned a lot of interpersonal skills in terms of working with people from very different backgrounds. I learned how quickly team building is possible and what a group of diverse people is able to achieve if they stick together. During this time, I served as the team's representative.

Experiences & Appointments, continued:

BeKa-Software, Summer 2023	BeKa-Software builds custom software solutions for a wide variety of industries. As part of my internship, I worked on a prototype project which implements their new home automation system. The system has a solar water heater with a tank size of 2,000 liters, solar power (8 kW) with a battery (10 kWh), and a heating pump. Additionally, electric vehicle charging and pool heating should be included. I was primarily involved in logic design based on available energy from the sun, EV charging requirements, and heating requirements for the house. Furthermore, I worked on the wiring of all the sensors, valves, and pumps included in the system. The prototype work was a great success and the company is using this system with their clients now.
NTT Data, Summers of 2018 - 2020	I worked part time in IT administration. During my time there I set up workstations with PCs and monitors. Additionally, I assisted setting up training rooms, with monitors and laptops.
Kostad, Summer 2017	As part of my internship, I worked on the project for e-charging stations for Europe. For this purpose, I cut cables, installed wire-end-sleeves, and installed and fastened them. Additionally, I installed the control units for the e-charging stations, and I provided support in testing finished charging stations.

Honors & Awards:

- Graduated Summa Cum Laude and Honors Distinction from University of South Carolina Beaufort (May 2024)
- Won first place in the category for Innovation/Application with my “Student Math Grades” project at USCB’s research day (April 2024)
- Won third place in the category for Hypothesis-Driven projects with “Classifying RNGs with Machine Learning” at USCB’s research day (April 2024)
- President’s List (GPA of 4.0) Freshman year, Sophomore year, Junior Spring, and Senior year
- Won third place in the category for Innovation with “Barnwell Tabby House Exploration” at USCB’s research day (April 2023)
- Chancellor's List (GPA of 3.9) Junior Fall
- Honors Program at USCB (2021 – 2024)
- SAAC (Student Athlete Advisory Committee) Representative for golf team (Academic Year 23/24)
- Member of USCB Golf Team with leadership responsibilities (2020 – 2024)
- Ring of Honor at HTL Mödling for graduating with Summa Cum Laude for all 5 academic years and Matura (Spring 2021)

Research, Scholarship & Creative Activity:

Walk on Subdomains Sharp Restart Point Evaluation using Machine Learning (2024 - 2025)	I explored the feasibility of using machine learning to estimate the best sharp restart point for a Walk-on-Subdomains (WoSD) algorithm, which for this paper is a Monte Carlo algorithm that estimates certain partial differential equations. Specifically, I used an algorithm which estimates the electrostatic free energy of a biomolecule in a solution. I examine various sharp restart points with more than 500 biomolecules. Using these results, I adapted a machine learning algorithm to predict the optimal sharp restart point based on the geometry of the biomolecules. This enables the algorithm to run more efficiently as it prevents the walker from becoming entrapped indefinitely during the traversal process of the WoSD part of the algorithm.
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Research, Scholarship & Creative Activity, continued:

Paper on SQLi detection methods (2025)	My two peers and I authored an introduction paper to SQLi detection evolution with a focus on the current approach. This paper is specifically tailored towards people with no prior experience in SQLi detection and is meant for them to have a starting point for future readings.
“Classifying RNGs with Machine Learning” (2024), USCB	This independent research was conducted in Spring 2024. My colleague and I worked on A) creating a database with the results of TestU01 of popular RNGs and B) created a model to predict RNGs with the help of machine learning.
“Student Math Grades” (2023), USCB	This independent research was conducted during the 2023/2024 academic year under the supervision of Dr. Davide Fusi. <i>Student Math Grades</i> is a data mining project for which we analyze the performance of students in their first math course at USCB based on prior experiences. For this purpose, we look at their high school GPA, high school grades, ACT / SAT math scores, and more. We created two models with which we can predict wheatear or not a student would pass or fail the most comment first math course at USCB.
“Barnwell Tabby House Exploration” (2023), USCB	is a virtual reality (VR) experience for the historic Barnwell Tabby House on Hilton Head Island, South Carolina (USA). This app was developed as part of a team in CSCI B570 with Unity and is useable on the Oculus Rift 2. I was tasked with the position of project manager and was majorly involved in optimizing the games performance.
“Bruce!” (2022), USCB	is a platformer (MVP), I created as part of a team in Agile Game Development (CSCI 409). The MVP was created using Unity, C#, and the Corgi Engine. As the version control system, we used Plastic SCM. The team consisted of two artists and two programs. I was the lead programmer on this project.
“Miss Peach” (2020), USCB	is a simple platformer created with Java and the Greenfoot API. For version controlling Bitbucket was used. With the project I was one of the Finalist of CSCI 145 Fall 2020 Java Game Design contest and finished as a Bronze Medalist. An online demo can be found at: https://www.greenfoot.org/scenarios/28956 .
Personal Website (2020), USCB	In CSCI 102 I created my own website as part of the final project. For this purpose, I used HTML, CSS, and some JavaScript. The website can be viewed at: https://chhagenauer-site.bitbucket.io .
Automation of valve test bench (2020), high school	For my thesis project, my classmate and I cooperated with a local company to automate tests run by valve test bench. For this purpose, I used C# to build test routines, while my classmate worked on the hardware requirements. We were able to finish our individual parts but were not able to test our solution with the test bench due to COVID-19 restrictions in Spring 2020.
Stereo amplifier (2019), high school	In my junior year, as part of a class project we developed hardware and software for a stereo amplifier. The requirements were that the connection is via aux and the user should be able to adjust volume, treble, balance, and bass. For this I designed the PCB and the necessary software for the microcontroller.
USCB website video: https://academics.uscb.edu/computer-science-math/computer-science/index.html	

Research Interests:

Machine Learning, Neural Networks, Data science, Data-centric computing, Big Data, High Performance Computing, Data Visualization

Selected Lectures attended, in reverse chronological order:

Course, Semester taken	Course Description (taken from syllabi)
Data Mining CSCI B522, Spring 2025	Concepts, issues, tasks and techniques of data analytics and machine learning. Topics include data preparation, feature abstraction, association, classification, clustering, evaluation and validation, scalability, spatial and sequence mining, and data mining application
Advanced Topic in Database Systems CSCI B520, Spring 2025	This course has been designed to provide guidance to students as they extend knowledge and skills developed in elementary database courses. In it, students will reinforce their understanding and proficiencies in relational data design and management. Through the solving of problems using modern industry-standard DBMSs, tools and techniques, students will learn how to more effectively and securely retrieve data from databases, how to implement programmatic logic stored and executed server-side (i.e., on the database server), and develop sufficient understanding to critically evaluate competing approaches to data retrieval and management.
Practical Computing for Computer Science CSCI B500, Fall 2024	Application of mathematical, science, and engineering problems to software engineering. Introduction to operating systems including UNIX/Linux
Numerical and Statistical Methods for Computational Science CSCI B515, Fall 2024	Advanced statistical methods. Topics include Bayes' Theorem, likelihood function and maximum likelihood estimates, frequentist statistical methods, Bayesian statistics and nonparametric methods
Abstract Algebra I MATH B410, Spring 2024	An introduction to algebraic structures. Introduction to group theory including subgroups, quotient groups, homomorphisms; introduction to rings including ideals, quotient rings, polynomial rings and fields of fractions.
High Performance Computing CSCI B569, Spring 2024	This course covers advanced-level techniques of parallel programming. Primary emphasis will be on understanding theory and techniques available for CPU cluster computing APIs including MPI, threading, and OpenMP. Build complex scientific applications capable of running on multiple nodes or multiple threads. Analyze the performance of parallel and serial high performance computational scientific applications, compare them, and report them at a more advanced scholarly level.
Introduction to Computer Networks CSCI B416, Spring 2024	Fundamental concepts in computer networks, protocols, and applications. Topics include: network architectures, transmission media, protocols, wireless networks, routing, security and latest topics.
Data Visualization CSCI B566, Fall 2023	Advanced techniques and algorithms for creating effective visualizations based on principles from graphic design, visual art, perceptual psychology, and cognitive science.
Foundations of Geometry MATH B331, Spring 2023	The study of geometry as a logical system based upon postulates and undefined terms. The fundamental concepts and relations of Euclidean geometry developed rigorously on the basis of a set of postulates. Some topics from non-Euclidean geometry.
Software Design & Implementation CSCI B570, Spring 2023	Current practice and research in software design and implementation. Topics include project planning and management, requirement specification, design process, implementation, testing and reliability, documentation, and maintenance.
Analysis I MATH B450, Fall 2022	A rigorous treatment of topics introduced in elementary calculus and more advanced topics basic to the study of real analysis.
System Modeling & Simulation CSCI B550, Fall 2022	Modeling and simulation of real systems. Topics include system analysis, design techniques, coding, data collection, output examination, and model evaluation.

Community service with golf team at USCB:

Backpack drive for local schools 2024

Caddying at RBC Heritage Pro-Am 2023

Working on broadcast with NBC sports for CJ Cup at Congaree Golf Club 2022

Collecting Food from stores and bringing it to food bank 2020