JOSHUA B. OSTACH
COMPUTER SCIENCE AND MATHEMATICS

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SUMMARY

Creative and driven Computer Science and Mathematics student seeking a full-time software engineering position.

Strong critical thinking skills, leadership experience, and engagement in diverse activities, with a passion for integrating technology into modern, innovative solutions.

Eager to contribute to a dynamic team and deliver efficient, high-quality results.

KEY SKILLS

- **Programming**
  - Languages
    - C • Java • Python • R
    - HTML • JavaScript
    - Swift
    - VBA
  - Object Oriented, Systems, and Applications Programming
  - Algorithms and Complexities
  - Memory and Performance Optimization
  - Networks and Databases
  - Operating Systems and Virtual Machines
- **Computer Engineering**
  - Verilog
  - MIPS ISA
  - CPU, I/O, and Memory systems
  - Digital Design
- **Mathematics**
  - Multivariable calculus
  - Statistics
  - Linear Algebra
  - Discrete
- **Physics**
  - Electromagnetism
  - Mechanics
- **Soft Skills**
  - Management
  - Sales
  - Accounting
  - CPR Certified

PROJECTS

- **Software Development and Applications**
  - 2D Drawing Application
  - Course Scheduling and Management Software
  - Two Player Chess Game
  - Apple OS Applications (*In Progress*)
- **Data Management and Analysis:**
  - Library Data Management Software
  - Multiple Data Sifter and Management Excels and Google Sheets
- **Hardware and Systems Projects**
  - Model CPU Through Xilinx
  - Traffic Light Controller Circuit
  - MDADM System
- **Artificial Intelligence and Machine Learning (*In Progress*)**
  - Reinforcement Learning Model
  - Multi-Agent Search Project
  - Machine Learning Implementation

EDUCATION

The Pennsylvania State University, State College, PA (2021-2025)
- **Computer Science Courses:**
  Data Structures\Algorithms · Object Oriented Programming · Systems Programming · Applications Programming · Theory of Computation · Programming Language Concepts · Artificial Intelligence (AI) · Digital Design · Computer Organization
- **Mathematics and Physics Courses:**
  Discrete Mathematics · Linear Algebra · Multivariable Calculus/Vector Analysis · Probability Theory · Statistics · Mechanics · Electricity and Magnetism

PROFESSIONAL EXPERIENCE

2024 – Present
Research · Penn State University · State College, PA
- *Optimize the run time of Boolean Satisfiability Problem (SAT) solvers using AI*
- *Assess Large Language Model (LLM) and Conflict Driven Clause Learning (CDCL) compatibility*

2019 – 2023
Intern · Mosaic Construction · Northbrook, Illinois
- *Created complex Excel formulas and macros for work in progress (WIP), Accounts Payable (AP), and Accounts Receivable (AR)*
- *Managed processing of over $2 million of AR transactions*
- *Led vendor Requests for Proposals (RFP) outreach on general contracting projects*
- *Managed client and vendor project change orders*

2022 – 2023
Teaching Assistant for CMPSC 131· Penn State University · State College, PA
- *Assistant taught over 150 students in Python and algorithms*
- *Conducted performance reviews on TA lectures and recitations*
- *Mentored students individually and in groups*
- *Proctored, created assignments, made rubrics, and graded weekly programming tests and assignments*

2019 – 2021, 2024
Specialist · JCC Chicago - Elaine Frank Apachi · Lake Zurich, Illinois
- *Led a team who designed and taught a musical and theatrical curriculum for hundreds of campers between ages 3 and 15*
- *Filled in and created curriculum for specialties based on daily need*

ACTIVITIES

- **Private Tutor** · 2021 – Present
  - *Tutor students in programming, mathematics, and further subjects*
- **Statesmen A Cappella** · 2021 – Present
  - Current Business Manager, Past Social Chair and University Liaison
  - *Manage over $5,000 dollars and organize financial accounts*
  - *Function as the liaison to Penn State's Associated Student Activities (ASA), the University Park Allocation Committee (UPAC), and the Performing Arts Committee (PAC)*
  - *Manage and lead all business opportunity communications*
  - *Discuss major decisions and resolve altercations and disagreements*
  - *Arrange and perform music at a variety of concerts, events, and gigs*
- **Penn State Hillel** · 2021 - Present
  - *Plan and lead religious services and events*
  - *Further the involvement of over 100 Jewish students through personal connections and extroverted friendliness*
  - *Delivered soup to ill students (2021-2022)*
- **HackPSU Spring 2022 Competition** · 2022
  - *Collaborated to create a social app from scratch in 24 hours*
- **THON** · 2021 – Present
  - *Plan and lead activities for children with pediatric cancer*
  - *Collaborated to create the THON organization "Unison"*
  - *Raise and donate money to benefit the Four Diamonds nonprofit*
- **PSU Thespians and No Refund Theatre** · 2021 – Present
  - *Music direct productions and mentor students interested in musical theatre*
  - *Design and construct multilayered sets for theatre productions*
  - *Perform music, monologues, interactive scenes, and dances*
- **PSU Baking Club** · 2022 – 2023
  - *Co-Founder, President, Treasurer*
  - *Oversaw bylaws and functioned as the liaison to the university*
  - *Managed all financials, budgeting, and purchasing of supplies*
  - *Encouraged engagement of over 150 members*