William Valentine

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Objective: Seeking research experience in the field of Computer Science.

Education: **Bachelor of Science, Computer Science and Mathematics** (Double Major) **May 2027**
Rose-Hulman Institute of Technology, Terre Haute, IN
Relevant courses: Data Structures, Intro to Systems Programming, Programming Language Concepts, Computer Architecture, Web Programming
Expected classes by Spring 2025: Real Analysis, Linear Algebra, Operating Systems, Statistics and Probability

High School Dual Program with Houghton University, Houghton, NY **July 2023**
Relevant courses: Programming I, Programming II, Web Frameworks

Skills: Programming Languages: JavaScript, Python, Java, C, Assembly, RISC-V, Scheme
Systems: Windows, Macintosh, Linux

Research: **University of Nevada, Reno, Reno, Nevada** **Summer 2024 - Present**
REU Site: Collaborative Human-Robot Interaction for Robots in the Field
- Worked alongside Dr. David Feil-Seifer and Dr. Emily Hand to create the first system for the detection human comfort and discomfort
- Published in ISVC2024 (first author), second paper under review at Machine Visions and Applications (first author)

Rose-Hulman Institute of Technology, Terre Haute, IN
Bidirectional simulated communication between robots and humans **Fall 2024 - Present**
- Worked alongside faculty to enhance embodied systems platforms by integrating novel intelligence models

LiDAR Point Cloud Alignment Using Hand Crafted Feature **Fall 2023 - Present**
- Worked alongside Dr. Lixing Song to address alignment issues caused by learning based point cloud alignment methods
- Work was accepted to ICDCS2024 (second author)

Houghton University, Houghton, NY
Intersection Traffic Automation for Vehicles **Summer 2023**
- Created a physical, working model of a server-controlled autonomous intersection

Modeling and screening aggregation inhibition of amyloid-beta peptides by small molecules as potential drug candidates **Summer 2023**
- Designed a python-based command-line tool to simplify the usage of AutoDock Vina in molecular bonding
- Created a tool to automatically process Mass Spectroscopy results
- Sped up the screening process dramatically; tools will be used in Houghton courses

Controller-free video games **Spring 2023**
- Created a demo of Tic-Tac-Toe that did not require any controllers or keyboards
- Explored other examples of controller-free video games

Experience: **Grader and TA, CSSE Department, RHIT**   **Spring 2023 - Present**
- Graded and assisted with student homework for over 140 students
- Created and designed an automatic grading system utilizing Python
- Nominated for CSSE TA of the year

Managing Partner, Tamriel Savings Co.   **August 2020 – August 2023**
- Created an image scanning system that recorded text from images 138% faster than leading commercial services with over 98% accuracy
- Grew the user base to 2-3K users daily
- Created a Discord bot that is on over 1,000 servers

Projects: **RISC-V Processor**   **Spring 2024**
- Created a processor with support for Euclid's algorithm using a memory-to-memory architecture
- Implemented using Verilog and tested using ModelSim

Scheme Interpreter   **Winter 2023**
- Created an interpreter for running a scheme-like syntax using scheme
- Language had local and global variable support along with support for functional programming styles

Editor Trees   **Fall 2023**
- Created program for updating, deleting, and rotating self-balancing AVL style binary trees
- Implemented using Java

Publications:

William Valentine, Megan Webb, Christopher Collum, Dave Feil-Seifer and Emily Hand, (2024). *HCC: An explainable framework for classifying discomfort from video,* ISVC2024

Song, L., **Valentine, W**., Yang Q., Wang H., Fang H., and Liu, Ye., (2024). *BB-Align: A Lightweight Pose Recovery Framework for Vehicle-to-Vehicle Cooperative Perception,* ICDCS2024

Honors: **Rose-Hulman Institute of Technology**, Terre Haute, IN
Rose Research Fellows
- Chosen for selective research experience for developing research skills and equipping students for futures in academics and research

Nominated for CSSE TA of the year

Houghton University, Houghton, NY
London Honors Program
- Highly competitive program for undergraduate students to study the humanities and art in London for a semester

Outstanding Computer Science Research 2023

Grants:
National Science Foundation, Alexandria, Virginia,
Conference Travel Award $500

Rose-Hulman Institute of Technology, Terre Haute,
Rose Research Fellows $500
IN IP/ROP 2024 $500
CSSE Departmental $2000