MacKenn Bross

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Education

University of Pennsylvania — **August 2017–May 2021**
Candidate for B.S.E. in Computer Science, minors in Data Science, Mathematics, and History — *Philadelphia, PA*
3.14 GPA
Highlighted Courses: Data Structures and Algorithms, Linear Algebra, Computer Architecture,
Scalable and Cloud Computing, Marketing/Social Systems on the Internet, Software Design/Engineering

Morris Hills High School — **Sept. 2013–June 2017**
Graduate of Magnet Program for Math and Science and AP Capstone Program — *Rockaway, NJ*
4.00 GPA

Experience

Work/Nonprofit Experience

Glen Wild Lake Swim Camp — **June 2015–August 2018**
Lifeguard, Counselor, Coach, and Assistant Boating Instructor — *Bloomingdale, NJ*
Planned/supervised activities and worked with 100+ campers aged 3-17, actively engaging with all campers and performing emergency first aid. As Assistant Boating Instructor, I focused on teaching boating safety and sailing skills and techniques.

Computers 4 Kidz — **August 2015–July 2018**
Co-founder — *Butler, NJ*
Co-founded the non-profit, setup Linux Mint on refurbished computers, and performed on-site installation of computers in homes of under-privileged students. Computers 4 Kidz is in the process of expanding its program to help students in other low-income areas.

Research, Projects, and other Experience

'College Simulator' Game (Ongoing) — **Sept. 2018–Present**
Game Designer and GUI Programmer
Using C# and the Unity environment to create user interface for 2D rogue-like game. I am working directly with the art team to implement custom assets for the project. Under development by the Game Research and Development (UPGRADE) club.

'notebook' Social Media Platform — **Nov. 2018–Dec. 2018**
Backend Developer and MapReduce Programmer
Used JavaScript with jQuery to write web backend. Used Java and Hadoop MapReduce to interface with Amazon AWS and compute friend recommendations for users using the adsorption algorithm. Completed for Scalable and Cloud Computing final project.

Course Scheduler — **April 2018–May 2018**
Frontend Developer
Used Java with Swing to create a user interface and weekly calendar display for a course scheduler, which interfaces directly with the University of Pennsylvania course roster. Completed for Marketing/Social Systems on the Internet final project.

'Hex Invasion' Game — **Nov. 2017–Dec. 2017**
Independent Game Designer and Programmer
Inspired by the game Risk, I used Java and its Swing graphics toolkit to create 'Hex Invasion', a territory-conquest game. I implemented graph algorithms and basic computer-controlled players. Completed for Programming Languages and Techniques final project.

Skills and Interests

- **Programming Languages (in order of proficiency):** Java, C, JavaScript, HTML, C#, Python, OCaml
- **Software and Tools (in order of proficiency):** Hadoop MapReduce, SolidWorks, Git, Amazon AWS, Node.js, Unity, Linux command line, LaTeX, Arduino
- **Hardware Skills:** 3D Printing, laser cutting, soldering
- **Other Interests:** Small lake sailing (8+ years), fencing (4 years), chess (12+ years), vexillology

Awards

- **Tom Newmann Scholar**
  Top University of Pennsylvania applicant from Passaic County, awarded by the Penn Club of Metro New Jersey