

# **Coin Miner**

## **Technical Report**

CSC468

Michael Barto, Shane Krause, Ian Lewis, Tanner Ragghianti

Version 0  
April 17, 2022

## **Summary**

The team is committed to carrying out a full stack deployment of the original coin miner design. The core components include a webui, rng, hasher, worker, and redis. CI/CD services will also be included in order to demonstrate a live update of the webui. We will need to use docker hub so that we can manage our containers. Cosmetic changes will also be done to the webui. Lastly, the coin miner will be deployed using kubernetes.

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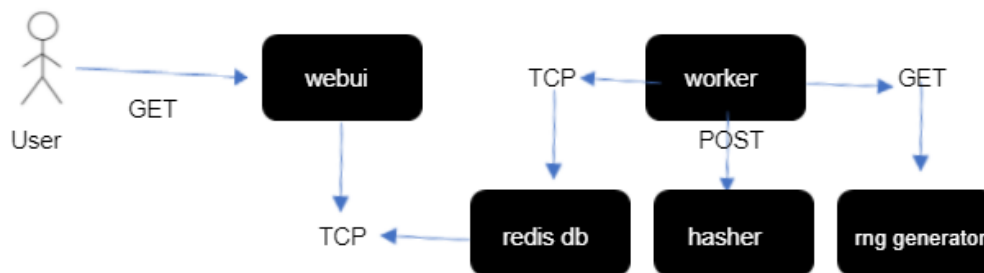
## Team Description

Our team is composed of fellow students enrolled in the Computer Science program at West Chester University. We come from various backgrounds but share a common interest in pursuing a career in a multitude of categories ranging from software development and IT, to cyber security and network management. Due to our unique backgrounds we will be able to solve abstract problems using our intuitive abilities and acquire feedback from each other when knowledge gaps occur.

# 1. Introduction

## 1.1 Vision

The team vision for the coin miner is to not only ensure stability and a smooth deployment, but to improve the program efficiency while also minimizing problematic areas of the project. Ideally, we want our coin miner to be composed of three groups to keep the program simple and reduce complexity. The three groups will be the front-end, back-end, and database with the front-end containing the webui, the back-end containing the worker, hasher, and rng, and the database using redis. The following diagram is a visual representation of how this would work in our internet architecture.



## 2. Technical Requirements

The team has come up with a variety of ideas to address the technical requirements of the project. Firstly, we are going to have our well established core components interconnected to form our full stack coin miner. Secondly, we will utilize CI/CD services so we can update our webui in real time. Next, we will polish the webui to make it more modern and appealing to consumers. As well as the basic foundation components, the team will be utilizing efficient services such as redis and will be using ruby for our hasher. Finally, discussion will occur to contemplate a more complex redesign of the entire protocol if the team feels it is necessary.

## 3. Intermediate Milestones

The team has made great progress since the start of this project. We have gotten our core components, webui, rng, hasher, and worker, for our ram coin up in our main branch. An accomplishment that we have made during this time is getting our kubernetes and kubernetes-jenkins branches in our repository. We are currently looking to get our repository all working so that we can deploy it using kubernetes. The kubernetes branch has been tested and is working properly. Our next goal is to try and deploy the ram coin from our main branch using kubernetes. A challenge that our team has is preventing any merge conflicts. Sometimes we will be tasked with pushing and pulling from the same branch and that can be an issue when it comes to merge conflicts. We are on track to successfully finish this project by the time deliverable 3 comes around.

# Shane Michael Krause

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## OBJECTIVE

My priorities and goals are to create long standing solutions, utilize my passion for improvement, and to enhance my knowledge and skill set in technical expertise. Another objective is to be involved in developmental activities such as one-on-one feedback sessions, industry tips, and performing in a dynamic work environment. I am experienced in a variety of technologies that allows me to be more intuitive when solving complicated technical issues and implementing impactful solutions.

## EDUCATION

**West Chester University**, West Chester, PA

– *Computer Science BS (3.2 cumulative GPA, overall)*

– *Computer Security Certificate (NSA endorsed)*

September 2018 - May 2022 anticipated graduation date

**Boyertown Area Senior High**, Boyertown, PA

– *High School Diploma*

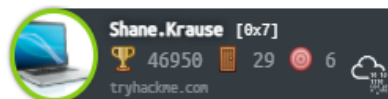
September 2014 - June 2018

Graduated with Honors (3.2 GPA)

## SOFTWARE AND PROGRAM SKILLS

At a young age, I knew my career would involve computers after building my own desktop PC at the age of 14. This created my attention to detail and focus to develop at a young age, which in turn boosted my work ability. My interest only increased resulting in my never-ending mission to learn as much as I possibly could about the inner and outer mechanisms of computers. In Computer Systems, I learned how to manipulate and represent information. After taking data structures & algorithms coursework, I was much more capable of working with large data sets. As a result of Computer Security and Ethics class, I started implementing extra security and a VPN on my devices. Other software/programs I am skilled in include but are not limited to:

- |              |         |                         |          |
|--------------|---------|-------------------------|----------|
| • Kali Linux | CLI     | MS Access               | MS Excel |
| • SQL Query  | VS Code | Tryhackme.com Profile - |          |



## EXTRACURRICULAR

Executive member and Recording Secretary of Phi Gamma Delta Chapter - Chi Kappa

- Attended leadership academy in St. Louis at the HQ
- Constant coordination with other executive members to plan and finalize events
- Organized, attended, and spoken at both philanthropy and community service



## WORK EXPERIENCE

### **West Chester Golf & Country Club, West Chester, PA - *Server and Event Planner***

December 2020 - October 2021

Organized and setup for large golf outings and other high-end events

Took drink and food orders while maintaining customer service and delivering the requested items to the customer

Assumed other positional roles when those employees needed the extra assistance

### **Bon Bon Sushi, West Chester, PA - *Delivery Driver***

June 2020 - November 2020

Delivered a wide variety of items to different addresses and different routes

Followed specific delivery routes in a fast-paced working environment, adhering to company standards of established timeframes

Loaded, unloaded, prepared, inspected and operated a delivery vehicle

Assisted in resolution of any client complaints or issues

### **Banana Republic, Limerick, PA - *Sales Associate***

April 2017 - August 2018

Responsible for the training and development of new junior sales associates

Implemented company up-selling strategies which included: recommending accessories and complementary purchases which aided the company to boost revenue streams.

Maintained oversight and financial accountability of assigned register

Maintained 100% reconciliation between the register amounts and daily income ledger with zero findings

Provided clear and consistent communication to supervisor and team during set meeting time frames

### **Our Place, Gilbertsville, PA - *Kitchen / Prep***

September 2015 - April 2017

Responsible for maintaining a clean and organized working environment in accordance with company standards

Assisted in ensuring the safety of food delivered to customers

# Michael Barto

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## PROFESSIONAL SUMMARY

6+ years of computer networking and programming education

## EDUCATION

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### **Computer Science. BS**

West Chester University of Pennsylvania, West Chester, PA

08/2020 – Present

- Current GPA – 3.3
- Expected graduation: May 2022

### **Computer Science. AS**

Delaware County Community College, Media, PA

09/2017 – 05/2020

### **Computer Networking & Digital Forensics**

Delaware County Technical High School, Aston, PA

09/2015 – 05/2017

### **High School**

Garnet Valley High School, Glen Mills, PA

09/2013 – 05/2017

## WORK EXPERIENCE

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**Mr. Wizard Car Wash** • Chadds Ford, PA  
Shift Supervisor

03/2016 – 08/2021

- Supervise attendants
- Manage network maintenance and outages
- Assist with equipment maintenance
- Train new hires
- Reconcile end of day financial status

## Attendant

- Maintain facility cleanliness
- Assist with customer purchases
- Prepare vehicles for car wash entry

## SKILLS

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### **Hard**

- MS Office Proficiency
- Programming Language Knowledge
  - (Java | Python | C | C# | UML | ML)
- Source Control
  - (Git | Github)

### **Soft**

- Relationship Building
- Change Management
- Presentation Skills
- Problem Solver



**Tanner Ragghianti**  
109 Tradition Lane  
Downingtown, PA 19335  
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**Profile:**

I am a detail-oriented computer science major currently attending West Chester University. Aiming to leverage technical, problem-solving, and organizational skills to successfully find a job as an IT System Administrator.

**Education:**

Delaware County Community College  
Associates in Computer Science  
Graduation: May 2020  
G.P.A.: 3.28

Related Coursework: Java Programming, C++ Programming, Data Structures & Algorithms

West Chester University  
Bachelor's in computer science  
Graduation: December 2022  
G.P.A.: 2.91

Related Coursework: Computer Systems, Program Lang Concepts/Paradigm

**Experience:**

Darden Restaurants, Downingtown, PA                      May 2018-October 2021

**Certified trainer**

Train new hires for their applied job to an ability level where they are competent enough to perform their daily tasks

Delaware County Community College, Media, PA      October 2019-Current

**Peer Tutor/Professional Tutor**

Assess student skill weakness, design and implement strategies to support understanding

**Informal job experience**

Experience helping other classmates in the past with understanding the material and with classwork.

Experience setting up and diagnosing small scale networks for personal projects

**Skills & Abilities**

Programming skills in C++ and Java

Experience with Hardware diagnostics

Microsoft office (Word, Excel, PowerPoint)

## **Ian Lewis**

4334 Silverwood Street | Philadelphia, PA | (215) 380-0287 | [lewis7033@gmail.com](mailto:lewis7033@gmail.com)

### **Education**

**West Chester University of Pennsylvania**, West Chester, PA

Bachelor of Science in Computer Science | December 2022

- GPA 3.4

*Related Courses:*

Data Structures & Algorithms

Computer Science III

Calculus II

Computer Systems

Computer Security & Ethics

Software Engineering

### **Work Experience**

Watson & Allard, P.C. | Information Technology Intern | August - December 2019

- Maintained a database and internal network
- Solved network and connection issues
- Assisted in creation of programs

Watson & Allard, P.C. | Legal Assistant | October 2016 - Present

- Communicates with clients to inform them on legal standings
- Collaborates with a team to achieve our goals
- Increased monthly profit

### **Activities**

- Member, West Chester University Computer Science Club Fall 2019 - Present

### **Technical Skills**

- Experience in Java and C programming languages
- Knowledge in operating systems Windows and Linux
- Experience in building computers
- Proficient in Microsoft Excel, Microsoft Powerpoint, Microsoft Word