

# Kyler Kopacz

(708) 340-5358 | [kkopacz21@amherst.edu](mailto:kkopacz21@amherst.edu)

16 Barrett Hill Dr, AC # 0332 Keefe Campus Center, Amherst, MA 01002

## EDUCATION

**Amherst College** | Amherst, MA | *Bachelor of Arts in Computer Science*

*Expected May 2021*

- GPA: In-Major: 3.73/4.00 | Cumulative: 3.50/4.00

## PROJECTS

**GroupMe Chat Bot** | Python | <https://github.com/KylerKopacz/amherst-baseball-bot>

*September 2018*

- Deployed a chatbot that responds to commands in the Amherst Baseball GroupMe chat
  - Employs BeautifulSoup4 and Requests python libraries to web scrape meals at Valentine Dining Hall. Users can request the information using “!Breakfast”, “!Lunch”, and “!Dinner” commands
  - Implements Requests library and the National Weather Service API to retrieve the current conditions in Amherst at current and future times. Group members type “!Weather” to receive the formatted information

**Cyclic Redundancy Check** | Java | <https://github.com/KylerKopacz/amherst-networks/tree/master/project-1>

*September 2018*

- Split message bytes into frames to allow for error detection in a network simulation
- Implemented Parity-bit error detection in network stack simulator using Java bitwise operations to check received frames for 1-bit errors per frame
- Coded Cyclic Redundancy Check error detection technique in a network simulation using Java bitwise operations and binary modulo 2 division to check received frames for up to 8-bit errors

**LRU Memory Page Swapping** | C | <https://github.com/KylerKopacz/amherst-systems/tree/master/project-5>

*November 2018*

- Engineered a program to swap out main memory pages to a backing store device when main memory is full
  - 32-bit virtual addresses are mapped to real memory locations, and can be located by using a page table
  - When there is no available space, the program swaps the least recently used page and sends it to the backing store device, clearing up space in main memory for new pages to be written
  - If a page on the backing store is referenced, the program retrieves it and loads it back into main memory, swapping the least recently used page in main memory to the backing store device

## RELEVANT COURSEWORK

- **Computer Systems (COSC-171)** | <https://github.com/KylerKopacz/amherst-systems> *September 2018*
  - **Topics Covered:** ISAs, Virtual Memory, Caching, Memory Management, Threads and Synchronization, File Systems, Virtual Machines, Embedded Systems
  - **Projects:** Recursive Exponentiation x86, Heap Allocator, Virtual Memory Translation, Page Swapping, VFS
- **Data Structures (COSC-211)** | <https://github.com/KylerKopacz/amherst-cs211> *January 2018*
  - **Topics Covered:** Stacks, Queues, Heaps, Binary Search Trees, Hash Tables, Red-black Trees, Dictionaries, Tries
  - **Projects:** Word Counting Dictionary, Postfix Calculations using Stacks, Spellcheck Trie
- **Algorithms (COSC-311)** | <https://github.com/KylerKopacz/amherst-algorithms> *September 2019*
  - **Topics Covered:** Set Algorithms (Sorting, Searching, Graph, String, Matrix), Algorithm Design Paradigms (Divide & Conquer, Dynamic Programming, Greedy Paradigms), NP Theory and Implications
  - **Projects:** TBA
- **Networks (COSC-283)** | <https://github.com/KylerKopacz/amherst-networks> *September 2018*
  - **Topics Covered:** Layered Network Structure, Signaling Methods, Error Detection and Correction, Flow Control, Routing, Protocol Design and Verification
  - **Projects:** Network Stack Error Detection, Stop-and-Wait Flow Control, Fortune Cookie Server
- **Probability and Computing (COSC-223)** | <https://github.com/KylerKopacz/amherst-prob-and-computing> *January 2019*
  - **Topics Covered:** Probability Theory, Discrete and Continuous Random Variables & Distributions, Markov Chains, Queueing Theory, Randomized Algorithms
  - **Projects:** Queueing Simulator, Caching Simulator, Bloom Filters Group Presentation
- **Performance Evaluation & Optimization (COSC-365)** | [gitlab.amherst.edu/COSC-365](https://gitlab.amherst.edu/COSC-365) *January 2019*
  - **Topics Covered:** Compiler Optimizations, Memory Hierarchy Performance, Probe Effects, Cache Contention, Parallel Bottlenecks and Scaling, Performance Analysis Techniques
  - **Projects:** Group Cache Contention Project, Written Analysis of Stack Displacement & Runtime

**Skills:** Java, C/C++, Python, Object-Oriented Programming, Data Structures, Networks, Systems, Linux, Windows, MacOS

## CAMPUS INVOLVEMENT & LEADERSHIP

**Campus Involvement:** Amherst College Baseball Team (2018 – Present, OF/P), Intramural Soccer

**Leadership:** COSC-171 (Computer Systems) Teacher Assistant (Fall 2019)