ROGER BURTONPATEL

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EDUCATION

Tufts University • Medford, MA **Graduation May 2024**

BS in Computer Science & BA in Music

GPA: 4.0, Dean's List

Relevant Coursework: Programming Languages, Virtual Machines and Language Translation, Compilers, Algorithms, Computation Theory, Machine Structure and Programming, Data Structures, Discrete Math, Cybersecurity

WORK EXPERIENCE

Northeastern University, MIND Lab **Spring 2019 - Fall 2022**
Research Assistant

- Lead regular interactive sessions on script-writing and best software practice.
- Automate multiple-month analysis pipeline with parallelism. Wrote all code for a long-term research project on music and cognitive decline.
- Presented our ongoing work at IAMM and CNS in 2020
- Co-author on ongoing study on music's ability to slow cognitive decline.

Queen Mary University of London **Fall 2022**
Research Assistant

- Built Python tooling to answer research question "Has pop music become more or less predictable since 1940?"
- Presented my work, along with documentation and testing, to research committee
- Co-author on ongoing study on music predictability

MathWorks **Summer 2023**
Software Engineering Intern

- Designed, engineered, and tested Full-Stack Cloud App in Go, Vue.js, and AWS Technologies.
- Directly communicated with and implemented features requested by company admin
- Built a comprehensive testing and deployment suite for future developers

BastionZero **Summer 2022**
Software Engineering Intern

- Built from scratch, tested, and deployed a logging microservice for the company's bastion in Go/Golang.
- Transitioned company logging to MongoDB using Kubernetes pods.
- Lead successful effort to rethink log capture method to mitigate vulnerabilities.

Tufts University, Computer Science Department **Fall 2021 - Present**
Teaching Fellow in Programming Languages, Teaching Assistant in Data Structures

PROJECTS

Write-Up of Brain Analysis Tools for Northeastern's HPC Documentation- Personal Project

- Updated and optimized old FMRIB software and practices on a lab-wide level, and wrote a detailed write-up on changes and use of new software, now in use on Northeastern HPC website.

Security Tool Suite- Personal Project

- Created a suite of tools used for web and application security, including fuzzers, static analysis tools, and port scan alarms. Uses Python, Shell, C++.

Scheme Compiler in Standard ML, Virtual Machine for Custom Compiler Backend in C
Compiler for Affine-Typed, Compile-time-garbage-collected functional language in OCaml
Translator from Python to MATLAB - Personal Project
Image Compressor (JPEG Emulation) Built in C
SAT Solver using CPS
Multiple Type Checkers for Scheme
Q.U.A.C.K. (Personal Project) - Custom TODO-list application written in Bash. Lots of fun.

Leadership

Tech Lead, JumboCode **Fall 2023**
Primary Student Instructor, CS-4: Teaching Computer Science (TA training course) **Spring 2023-Present**