

# Tushar Shrivastav

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## EDUCATION

### Santa Clara University

*Bachelor of Science in Computer Science*

Santa Clara, CA

Sep. 2021 – Jun. 2024

- Cum. GPA: **3.8/4.0** & Emphasis in Software
- Coursework: Data Structures, Discrete Math, Embedded Systems, Logic Design, OOP, Prob & Stat I, Theory of Algorithms, Linear Algebra, Programming Languages, Automata & Languages, Computer Graphics, Design/Management of Software, Operating Systems, Data Science, Databases

## EXPERIENCE

### Machine Learning Researcher

*Santa Clara University*

May 2023 – Present

Santa Clara, CA

- Machine Learning for **Ransomware Detection on smartNIC technology** with Dr. Sean Choi in The Cloud Lab
- Training models, such as XGBoost, Neural Network, and Naive Bayes to detect Ransomware from a dataset with 30,000+ features & 1,500+ samples

### IoT Researcher

*EPIC IoT | C/C++, Arduino, Node.js, Svelte, Ruby on Rails, Typescript, Postgres, GraphQL*

Sep. 2021 – Present

Santa Clara, CA

- Building out **Web Dashboard** for various Agricultural IoT Devices such as DOxy, Hydration Automation, & AB.
- Creating **IoT Data pipeline** to send/receive data from devices and IoT Web Dashboard
- Created **ML Regression model** on samples of Infrared sensor data versus real Dissolved Oxygen percentage
- Implemented AB energy-aware **networking protocol** to send sensing data to bay-station for DOxy & HA
- Created **WiFi communication** for T2 Whispermodes to relay sensing data to Web Dashboard using ESP8266-01

### Computer Science Teaching Assistant

*Santa Clara University*

April 2023 – September 2023

Santa Clara, CA

- Assist in holding labs & grading of the following computer science courses in Python, C++, Scala, & Java:
  - \* CSCI 169 - Programming Languages
  - \* CSCI 61 - Data Structures
  - \* CSCI 60 - Object-Oriented Programming
  - \* CSCI 10 - Introduction to Computer Science

### Co-op Software Engineer

*Realtor.com | Node.js, React.js, JavaScript, TypeScript, Next.js*

June 2022 – February 2023

Santa Clara, CA

- Improving security of APIs utilizing **OAuth 2.0 & Cryptography** by building service for client authentication
- Created technical documentation for API Auth detailing modified **PKCE flow** with cryptographic Proof of Work
- Implemented custom frontend **NPM package** to utilize in APIs to be authenticated with backend service
- Tested validation performance of popular **node.js JWT** Libraries leading to **50%** increase in performance
- Created graphs for logging data for API Authentication service in **Splunk** using RegEx
- Responded to Security Incidents utilizing **AWS Cloudformation** templates

## PUBLICATIONS

**DOxy 2.0** (Pending Publication) in MDPI Sensor Networks Journal

## PROJECTS

**Puck** | *Rust, Java, Kotlin, React.js, Typescript, SQLite, Axum*

2022

- Built a self-hosted desktop media server application for manga/comic books to share your media
- Implemented multi-platform interface allowing users to organize files using comic/manga metadata APIs

**Graphics Projects** | *C*

2023

- Used SDL to render a 3D face object by reading vertex and triangle data from files, performing rotations and zoom based on user input, and displaying the object on the screen
- Used SDL to implement Raycasting Algorithm for Shaded Spheres

**Journey Made Simple** | *Javascript, React Native*

2023

- Created a React Native app for route planning, integrating Lyft, Google Maps, and Uber APIs
- Implemented a user-friendly interface with map visualization and address suggestions, allowing users to compare and rank transportation options based on preferences.

## TECHNICAL SKILLS

**Languages:** Python, C/C++, SQL (Postgres, SQLite), JavaScript, Typescript, Go, HTML/CSS, JSON, Bash, Kotlin, Rust, Assembly, Scala

**Frameworks:** React.js, Next.js, Node.js, Svelte, Ruby on Rails, Express.js, MongoDB, HyperLedger Fabric, Axum

**Graphics:** Vulkan, GLSL, WebGL