# Tahmin **Talukder**

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## **Edu**cation

**University of Washington** *Seattle, WA*
B.S. Computer Science, B.S. Mathematics *September 2018 - June 2022*
- GPA: 3.7/4.0
- Courses: Data Structures and Algorithms, Database Systems, Distributed Systems, Computer Security, Machine Learning, Embedded Systems, Web Programming/Technologies

## **Rel**evant Skills

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|---|---|
| **Languages/Frameworks** | Java, Python, C, JavaScript, React, Next.js, PHP, SQL, Bash, MATLAB, R, Assembly |
| **Infrastructure/DevOps** | AWS, Kubernetes, Docker, Helm, Terraform, eksctl, Snyk, Datadog |
| **Databases** | PostgreSQL, DynamoDB, MySQL, SQLite |
| **Testing** | JUnit, pytest, unittest (Python Standard Library) |
| **Data Visualization** | Kibana, Tableau |
| **Other Technologies** | Git, Linux, Firebase, Vercel, Elasticsearch, Apache Spark, Apache Arrow, Airbyte, RabbitMQ, Dremio, Ray |

## **Exp**erience

**IKIGAI LABS** *Seattle, WA (Remote)*
SOFTWARE ENGINEER (INFRASTRUCTURE) *October 2022 - March 2024*
- Launched new production environment by deploying internal microservices using Helm and setting up associated AWS infrastructure (EKS cluster, EC2 nodes, load balancers, RDS PostgreSQL databases, API Gateway, and RabbitMQ message brokers) using Terraform to enable blue/green deployments to increase platform stability, availability, and reduce production deployment risks.
- Designed, developed, and deployed Python APIs to verify user file uploads to ensure only acceptable file formats are being uploaded within the platform.
- Led the implementation of Datadog for infrastructure monitoring and forwarding Fluentd logs, enabling migration from Amazon OpenSearch, reducing AWS expenses, and enhancing platform stability and observability for non-technical stakeholders.
- Identified and mitigated cryptocurrency miner programs run by malicious users on the company platform by deploying Datadog monitors for real-time detection and implementing a cron job in EKS clusters to execute a Python script that terminated the malicious programs and users.
- Reduced number of Docker Hub image pulls to avoid rate limits by migrating images to Amazon ECR and deploying service accounts within EKS clusters to enable authenticated image pulls from private repositories.
- Worked with third-party auditors to obtain SOC 2 Type I and Type II certifications by reviewing/providing necessary documentation and evidence demonstrating compliance with industry-standard security practices for certification.
- Researched, identified, and presented AWS expense pain points to senior management and took measures to reduce costs such as retiring unused databases, scaling down EC2 nodes, purchasing compute savings plans, and reserving RDS and EC2 instances.
- Integrated Apache Arrow in data ingestion pipeline to transform user-uploaded datasets into Parquet partitions for internal storage in S3, enabling chunked data loading and reducing compute usage by avoiding full CSV memory loads.
- Scaled data ingestion pipeline by leveraging Ray and Anyscale to offload compute tasks, efficiently handling large user dataset uploads.
- Integrated Snyk into Bitbucket pipelines to scan dependencies and Docker images for security vulnerabilities in the CI/CD workflow.
- Deployed Airbyte to EKS clusters using Helm to migrate from Fivetran, reducing vendor expenses for custom data connectors and ETL processes.
- Led production pushes by tracking completed JIRA tickets within current sprint, communicating with QA testers and engineers to ensure functionality/stability standards had been met, and deploying planned updates to production.

**IKIGAI LABS** *Seattle, WA (Remote)*
SOFTWARE ENGINEER INTERN *October 2021 - June 2022*
- Designed, developed, and deployed Python APIs to enable booking product demos with the marketing team which led to onboarding future clients and drafting contracts.
- Designed, developed, and deployed Python APIs that enable users on the platform to access and view product documentation and guides which reduced the amount of reported user errors and misunderstandings.
- Aided in implementing unittest test suites within internal Python libraries to ensure sanity checking and baseline functionalities are maintained when engineers implement new features and bugfixes.
- Learned how to build, manage, and deploy Docker container images in order to push new features/bugfixes and update associated pods in Kubernetes using Helm.

**UNIVERSITY OF WASHINGTON REALITY LAB** *Seattle, WA*
UNDERGRADUATE RESEARCHER *June 2021 - November 2021*
- Worked with a group of undergraduates under the supervision of Director of Research and Education, John Akers, to research wearable motion tracking systems from STMicroelectronics and how they can enhance AR for training and fitness applications.
- Utilized prior research from the Reality Lab on 3D pose and high-resolution mesh generation from images of NBA players and applied it to video of an NBA player shooting free throws to generate datasets containing body and pose position estimates.
- Utilized Python to generate the velocity tand acceleration curves of the NBA player pose dataset and compared the similarity of curves to a pose dataset generated from a user wearing STMicroelectronics motion sensors to see how closely the user's movements mimic those of the NBA player during free throws.
- Presented a proof-of-concept AR application that provided feedback for practicing basketball free throws during XR Day 2021 at the University of Washington in collaboration with STMicroelectronics.

**STRATEION GROUP** *Kent, WA (Remote)*

WEB DEVELOPER *February 2021 - April 2021*

- Collaborated with a team to develop, design, and deploy a company website for Strateion, a business and information technology consulting firm.
- Utilized WordPress and CSS to manage, design, and style the website and the content present within it, e.g., contact forms, company information, services, responsive media, etc. as per the client's needs and requests. In addition, attending biweekly meetings with the project manager to discuss progress, design, and client feedback.
- Gained professional web development experience by providing services for clients in a Scrum environment through the successful completion of tasks by the end of sprints.

**UNIVERSITY OF WASHINGTON DEPARTMENT OF STATISTICS** *Seattle, WA*

UNDERGRADUATE RESEARCHER *December 2019 - April 2020*

- Worked with Ph.D. student Shane Lubold on applying graph theory and statistical modeling to identify various types of geometries of networks and graph models.
- Wrote R scripts to simulate arbitrarily large random graph models to record key features/behaviors and growth rates of the simulations, and reported results to senior group members.
- Gained experience in working in a team within an academic research environment by being provided with feedback from other members on code efficiency to improve the quality of work.

# Projects

**Pokemon Battle Simulator** Developed an interactive webpage that allows users to battle a randomly selected Pokemon and add defeated Pokemon to their Pokedex, which can be used later. Written in HTML, CSS, and JavaScript for behavior and updating visuals to represent the current game state. Successfully set up a MySQL database through phpMyAdmin to store information on the Pokemon and wrote multiple web services in PHP that responds to GET and POST requests to read and write information from the database.

**React Chat App** Developed an app that allows users to communicate with others that are in the same chat room through text messages and pictures by using their cameras on browser and mobile. Written using React for the functionality of sending messages, pictures, and allowing users to set usernames. CSS was used for the styling and appearance of various parts of the app. Utilized Firebase for deployment and to store user messages in a database.

**STEP UP App** With a team, developed an app that tracks patients' daily exercise habits and incentivizes participation through appealing visuals and fun objectives from a game board to provide healthcare professionals insight into their patients' progress. Developed using React to track and update the number of each type of exercise that each patient completes. CSS was used for styling the app's interface and adding responsiveness. Accomplished in making a Figma wireframe and functional prototype.

**COVID-19 Mathematical Model Analysis** A research project focused on mathematically modeling (primarily through epidemiological compartmental models) the initial outbreak of COVID-19 within the population of Hubei Province in China. Utilized data reported by the World Health Organization from February 2020 to early March 2020 and incorporated initial academic research from that period. MATLAB was used to write the functions for each compartmental model and to generate the plots for growth rates and stability analysis.

**Miscarriage Statistical Analysis** A research project focused on examining existing pregnancy data from the National Center for Health Statistics to predict a person's risk of miscarriage. Python (through Jupyter Notebook) was used to scrape data hosted by the United States government on an FTP server. Used Pandas and NumPy to clean, filter, and feature engineer the data. Lastly, used Matplotlib and Seaborn to generate the statistical graphics and data visualizations present within the final analysis report.

**Discord Bot** Developed a Discord bot that responds to user messages containing negative words with positive and encouraging messages. Written using Python and utilizing the Discord API. Successfully set up a web server to host the bot.

**Simple Text Editor** In C, developed a minimal text editor based on kilo. Did not utilize any non-standard C libraries. Implemented basic features expected in a text editor including reading raw input, saving changes to disk, escape sequences, syntax highlighting, and search.

**Geography Quiz Game** In Java, developed a geography game that contained different modes on how to be tested on geographical knowledge. Implemented JFrame and other frameworks to display game questions, buttons, graphics, and manage user interface. Designed and implemented algorithms to reduce run time of loops and conditionals needed to check correctness of user answers.