EGE USEL

Berkeley, CA | (510) 520-3843 | egeusel@berkeley.edu | https://egeusel.github.io/cv/

EDUCATION

University of California, Berkeley *Aug 2018- May 2023*

Computer Science - BA GPA: 3.4/4.0

Bioengineering - BS

Relevant College Coursework

Structure & Interpretation of Computer Programs | Data Structures | Computer Architecture | Efficient Algorithms & Intractable Problems | Introduction to Internet: Architecture & Protocols | Computer Security | User Interface Design & Development | Foundations of Data Science | Principles & Techniques of Data Science | Machine Learning for Computational Biology | Computational Biology | Discrete Mathematics & Probability Theory

WORK EXPERIENCE

Software Engineer *July 2023-present*

909 Technologies

- Played a key role in **Java** development of new features as well as maintenance in the company's enterprise application using **Jmix** and **Spring Frameworks**; focused on both **frontend and backend** development, including creating user interfaces with XML layouts and **Vaadin** Web Framework, and backend services for business logic.
- Managed and optimized complex databases, employing **Liquibase** for database version control, Entity Relationship diagrams for clear design visualization, **ORM** for efficient data interaction, formulated advanced **JPQL** queries, and optimized **PostgreSQL** usage in service layer
- Enhanced application performance by implementing strategies, such as lazy loading, which reduced page load times up to 66% in some webpages
- Integrated **AWS** S3 for cloud-based file storage within the application, and performed occasional file updates using AWS CLI
- Employed **Agile** practices and **Jira** for streamlined development cycles and task management, fostering continuous code integration and development, while regularly contributing to application feature enhancements and occasional RESTful mobile updates.

Scientific Software Engineering Intern *April - May 2021*

Sentromer DNA Technologies Inc.

- Collaborated with the R&D team on the development of COVID-19 test kits, working alongside a diverse **team of scientists and engineers**
- Undertook an independent project developing **Java-based software tools for lab automation**; developed a codon optimization algorithm to find the best synthetic sequence for maximizing gene expression (based on prior experimental data), involving the use of sliding window analysis and Monte Carlo simulations; built an inventory management system with custom parsers and serializers for efficient data processing and inventory tracking
- Participated in Solid-Phase Oligonucleotide Synthesis, and quality control with HPLC procedure, facilitating the progress of molecular experiments

SKILLS

Programming Languages: Python, Java, C, C++, Go, JavaScript, Typescript, HTML, CSS, C# (.NET), SQL, MATLAB, Assembly, X86, RISC-V

Technologies: Git, UNIX, Java Spring Framework, Jmix Framework, Vaadin Framework, XML for layouts, Django, MVC, JUnit, RESTful APIs, Maven, Gradle, Docker, MySQL, AWS S3, AWS RDS, AWS CLI, React, Bootstrap, jQuery, Node.js, Vue.js, PyTorch, Scikit-learn, Pandas, Seaborn

Languages: English, Turkish, French

HIGHLIGHTED PROJECTS

NUMC

- Wrote Numpy in **C** which can perform efficient matrix and vector operations, using **C memory management**, double pointers, and structs
- Used **SIMD instructions** implemented through **Intel Intrinsic, thread-level parallelism** using **OpenMP API, loop unrolling and algorithmic optimization** techniques to improve the performance of array operations which significantly increased program speed

INTERNET PROTOCOL IMPLEMENTATIONS

- Implemented **Distance Vector Protocol** in **Python** for intradomain routing which computes efficient paths across the network; for this, a distributed algorithm running at each router was used; split horizon, poison reverse, and route poisoning ensured time efficiency and to avoid congestion.
- Implemented **Socket API** which provides a logical pipe that connects a sender and a receiver; it uses **TCP** to provide reliability; lost packets are retransmitted based on the nonfixed Retransmission Timeout value, which is constantly updated based on Round Trip Time, to avoid sending duplicates

CRM with AI-Powered Insights

- Developed a Customer Relationship Management (CRM) **web application** with a **microservices** architecture, utilizing Spring Framework (including Boot, **MVC**, Data JPA, Security), Thymeleaf, HTML, CSS, JavaScript, and MySQL; containerized both the application and MySQL using **Docker** for enhanced portability and consistent environment configurations.
- Integrated OpenAI's GPT-4 model to provide **real-time sales data analytics**, transforming raw data into actionable insights in real-time
- Implemented **RESTful API endpoints** for customer data management, enabling expansion like a mobile application version
- Designed a Thymeleaf and Bootstrap web interface for customer and sales management, including filter-based search and sales data visualization
- Hosted database in cloud via **AWS RDS**; built and managed dependencies with **Maven;** project was version-controlled on **GitHub**

SECURE DATA STORAGE SYSTEM

- Designed and implemented an **end-to-end encrypted** file sharing system in **Go**. Incorporated industry-standard cryptographic measures, including password hashing for enhanced user account security, symmetric key cryptography to ensure data confidentiality, and HMACs to provide data integrity
- Developed a sophisticated file management system with capabilities such as user authentication, efficient file storage/retrieval, and **secure file sharing/revocation** through digitally signed invitations
- Ensured data management and tracking by utilizing UUIDs for unique identification of various data structures in a multi-user environment