Peiyuan (Patrick) Ma

mapeiyuan1874@gmail.com | 314.332.8767 | Chapel Hill, NC | Github | LinkedIn | Personal Website

EDUCATION

University of North Carolina at Chapel Hill Expected Dec 2021

B.S. in Computer Science, B.S. in Statistics, *Phi Beta Kappa*, **GPA**: 3.97/4.0

Courses: Algorithms (TA), Data Structures, Operating Systems, Databases (TA), Compilers, Networking, Web Development

SKILLS

Languages: Java, Python, C#, JavaScript, C, Racket, SQL, R, HTML, CSS

Development: Spring, Express, Django, WPF, Vue, React, Bootstrap, Sequelize, MyBatis, MySQL, MongoDB

Infrastructure&Tools: AWS Solutions Architect Associate, Docker, Maven, NuGet, Jira, Git

EXPERIENCE

Credit Suisse, Raleigh, NC May 2021-Aug 2021

Software Engineer Intern, Credit eTrading Team

- Implemented a **mock Bloomberg trading client** in .NET Framework for dev & support teams to do trading tests on the internal trading app, saving **$60,000+/yr** on underutilized Bloomberg licenses
- Engineered mock client's message services that communicated with the internal trading app in Bloomberg format messages, and connected client to server with TIBCO Enterprise Message Service
- Built an endpoint to process test tickets without reporting to regulators, enabling trade flow checks in production
- Developed client GUI in WPF, MVVM to help new hires learn trade flow intuitively, reducing training costs by **$1,000/yr**

UNC Department of Computer Science, Chapel Hill, NC May 2020-Aug 2020

Research Assistant, Eye Tracking for People with ALS

- Created a low-cost eye tracking solution helping people **losing muscle control** (ALS) interact with websites using eyes
- Wrote a data collection site in face-api.js, enabling volunteers to contribute eye gaze data with a webcam in **1 second**
- Built an admin dashboard for visualizing, removing corrupted image data, resulting in a cleaned dataset of size 1000+
- Developed eye tracking models in scikit-learn and Keras on Google Cloud, achieved an average test accuracy of **95%+**
- Engineered a demo website using ml.js, tensorflow.js, enabling users to see eye tracking results

Renaissance Computing Institute, Chapel Hill, NC Apr 2021-June 2021

Software Engineer Intern, Dashboard Team

- Worked on an internal dashboard for automating standard operating procedures with 4 other full-times
- Developed automation scripts in Apps Script that shortened intern position posting, application processing, and meeting recap by **20+hrs/yr**, created documentation with graphical instructions for users and developers
- Tested 30+ tickets of the dashboard manually and worked in an agile environment with 21-day sprints using Github

SELECTED PROJECTS

miniJava Compiler (Java) Jan 2021-May 2021

- Implemented a compiler for a nontrivial subset of Java in 5000+ lines of Java from scratch
- Designed a recursive descent parser that generated ASTs, and achieved operator precedence by stratifying grammar
- Programmed a contextual analyzer performing identification, type checking on ASTs using the visitor pattern
- Constructed a code generator targeting a stack machine, allowing miniJava to be executed properly on all platforms

miniLisp Interpreter (Racket) Jan 2021-Apr 2021

- Developed an interpreter for a lisp-style language with OOP functionalities from scratch in 1000+ lines of Racket
- Created a lexer based on regular expressions, and built a parser using generated tokens and homoiconicity of Racket
- Achieved lexical scope, procedure, instantiation, inheritance, polymorphism by passing, mutating environment

ApparelUNC (React, Express, MongoDB, Python) Sep 2020-Nov 2020

- Developed a UNC apparel shopping website with real-world data helping students to find the best outfit combinations
- Scraped 700+ apparel data from UNC websites using Beautiful Soup, and stored data in MongoDB Atlas
- Implemented REST APIs using Express and mongoose for CRUD operations on apparel and user data
- Engineered shopping cart, fitting room as single-page applications, and perfected UI components in Bootstrap