Patrick (Peiyuan) Ma

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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, 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

Technology Analyst 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, structured code in factory, builder, adapter patterns, connected client to server with TIBCO message queue
- Built a 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, shortening training time by hours

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 Development Intern, Dashboard Team

- Developed automation scripts in Apps Script that accelerated intern position posting, application processing, and meeting recap by **20+hrs/yr**, created README with graphical instructions for users and developers
- Facilitated development of internal dashboard by testing 30+ issues in an agile environment using Github Projects

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
- Constructed AST by developing recursive descent parser, achieved operator precedence by stratifying grammar
- Developed identification, type checking, code generation in visitor pattern and generated code for a stack machine

miniLisp Interpreter (Racket) Jan 2021-Apr 2021

- Created an environment-passing, OOP interpreter for a lisp-style language from scratch in 1000+ lines of Racket
- Built recursive descent parser based on homoiconicity of Racket and programmed lexer using regular expression
- 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
- Engineered SPA frontend to reduce page reloads and perfected UI components of shopping cart, fitting room
- Scraped and stored 700+ apparel data from UNC websites**,** and developed well-documented REST APIs