Tao Tao

984-209-6617 | ttao@cs.unc.edu

Education

University of North Carolina at Chapel Hill　　　　　　　　　　　　　　　2018/09 - 2023/06
Ph.D., Computer Science

University of California, San Diego　　　　　　　　　　　　　　　　　　　2011/09 - 2015/06
Bachelor, Computer and Digital Studies

Experience

Interactive Online Configurator via Boolean Satisfiability Modeling　　　　2020/06 - 2020/10
Algorithm engineer intern - Lenovo Group
- Redesigned the core validity solver algorithm for interactively identifying invalid PC configurations
- Implemented the algorithm using a declarative satisfiability approach in concurrent Java and achieved better simplicity and correctness than all existing Lenovo implementations
- Formalized the model using relational and satisfiability theories and built a proof of the algorithm guaranteeing 100% correctness of the configurator output
- Published a paper in the IAIT 2021 conference (ACM ICPS Proceedings) on the topic

Lenovo Global Sales Backend　　　　　　　　　　　　　　　　　　　　　2017/09 - 2018/08
Backend engineer - ThoughtWorks
- Led a team of five and built a PC configuration and order management platform that supports all of Lenovo's global sales operations based on the Spring framework
- Designed a data preprocessing system that pretty-formats and sanity-checks PC configuration skeletons while adapting to major data source differences in business vs. consumer-facing scenarios
- Implemented over 40+ features across the platform, including a transaction processor, warranty eligibility checker, PC price calculator, and universal event logger
- Deployed the service using Docker and accumulated over a million user visits over six months without critical issues

ThoughtWorks Internal Budget System　　　　　　　　　　　　　　　　　　2017/05 - 2017/09
Software engineer - ThoughtWorks
- Built a budget management website that allows department users to submit, view, and edit internal budget items in Vue
- Designed a Node.js and MongoDB backend that supports secure authentication and fast, asynchronous data access APIs
- Created a frontend workflow interface for a step-by-step spreadsheet export feature that generates Excel files with graphic presentation of monthly budget data

PwC Accounting Platforms　　　　　　　　　　　　　　　　　　　　　　　2015/06 - 2017/05
Software engineer - ThoughtWorks
- Built over 100+ new features in a 24/7 microservice system that maintains global tax compliance for PwC clients, including expatriate profile management, travel record collection, and intelligence questionnaires in C# and ASP.NET
- Redesigned the 5-year-old legacy expatriate portal website for profile management, intelligent questionnaire filling, document uploading, and tax report generation. Re-implemented the website using modern JavaScript technologies, such as React, web components, Sass, and asynchronous RDBMS servers, to enhance performance and user experience
- Designed key algorithms for the intelligent questionnaire service responsible for automatic answer deduction and multi-questionnaire merging with 100% automated test coverage

Skills

Languages:　　　Java, JavaScript, C, Python, C++, C#, Scala, Haskell
Tools:　　　　　Spring framework, ASP.NET, Node.js, JSON, HTML, CSS3, Angular, React, Vue, SQL/Relational database RDBMS, Mongo/NoSQL, Git, Jenkins, Docker, Concurrency/Multithreading