

# Tao Tao

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

## Education

<b>University of North Carolina at Chapel Hill</b> Ph.D., Computer Science	2018/09 - 2023/06
<b>University of California, San Diego</b> Bachelor, Computer and Digital Studies	2011/09 - 2015/06

## Experience

<b>Bentley Role-based Access Control System</b> <i>Software Engineer Intern - Bentley Systems, Inc.</i>	2022/05 - 2022/08
--	-------------------

- Migrated existing SQL Server database to PostgreSQL for horizontal scaling of 100+ million role-based access control data that safeguard client permissions to connect to all company-managed Digital Twin assets, ensuring on average <20ms latency under hundreds of requests per second server load
- Refactored 50+ stored procedures to take advantage of more readable and robust PostgreSQL syntax with 100% test coverage
- Designed a zero-downtime database switching scheme to deliver a smooth transition experience for the users

<b>Interactive Online Configurator via Boolean Satisfiability Modeling</b> <i>Algorithm Engineer Intern - Lenovo Group</i>	2020/06 - 2020/10
---	-------------------

- 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, built a proof of the algorithm guaranteeing 100% correctness of the configurator output, and published a paper at the ACM IAIT 2021 conference on the topic

<b>Lenovo Global Sales Backend</b> <i>Backend Engineer - ThoughtWorks</i>	2017/09 - 2018/08
--	-------------------

- 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

<b>PwC Accounting Platforms</b> <i>Software Engineer - ThoughtWorks</i>	2015/06 - 2017/05
--	-------------------

- 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 .NET framework
- 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

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