

Dekun Ma

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EDUCATION

New York University (NYU) **Expected June 2023**
Bachelor's degree, Computer Science and Data Science **GPA 3.94 / 4.0**

- Dean's List Honor (2021 – 2022)
- Relevant Coursework: Algorithms, Operating Systems, Machine Learning, Probability and Statistics

University of California, San Diego (UCSD) **2019-2020**
- Relevant Coursework: Data Structures, Calculus III, Linear Algebra, Discrete Math

SKILLS

Programming Languages: Java, Python, JavaScript/TypeScript (ES6), R, SQL, C/C++

Frameworks and Libraries: SpringBoot, React, React Native, Next.js, Node.js, Vue, MyBatis, Redux, Hugo

Databases: MySQL, PostgreSQL, MongoDB, Redis, GCP Datastore, Neo4J

Machine Learning & Deep Learning: PyTorch, Keras, scikit-learn

Data Science: HDFS, MapReduce, Pandas, NumPy, Matplotlib

System & Tools: Unix, Jenkins, AWS EC2, Terraform, GCP App Engine, Docker

Project Management: Jira, Asana, ByteDance Meego

PUBLICATIONS

V2X-Sim: Multi-Agent Collaborative Perception Dataset and Benchmark for Autonomous Driving

Yiming Li, **Dekun Ma**, Ziyang An, Zixun Wang, Yiqi Zhong, Siheng Chen, and Chen Feng 07.2022

- A comprehensive multi-agent multi-modal multi-task 3D perception dataset for autonomous driving
- Published on *IEEE Robotics and Automation Letters (RA-L)*
- To be presented at *IEEE International Conference on Robotics and Automation (ICRA)*
- <https://ieeexplore.ieee.org/document/9835036>

Multi-Robot Scene Completion: Towards Task-Agnostic Collaborative Perception

Yiming Li*, Juexiao Zhang*, **Dekun Ma**, Yue Wang, and Chen Feng 09.2022

- Task-agnostic and self-supervised collaborative perception paradigm for multiple downstream tasks
- Accepted by *The Conference on Robot Learning (CoRL)*
- <https://openreview.net/forum?id=hWotcXOJas2>

PRACTICAL EXPERIENCE

Technical Program Manager Intern | TikTok (ByteDance Inc.) 06.2022 – 09.2022

Cross-functional team management, request prioritization, risk management New York City, US

- Supported **18 business lines** by redesigning requirement workflow to reduce stagnation by **14+ days**
- Ensured **99.34%** of requirements were accurate and timely by implementing an automated **auditing** process
- Led **Agile core procedures** such as standup meetings and retrospectives
- Received “**exceed expectations**” as the overall feedback during the performance review

Full-stack Software Engineer Intern | ThoughtWorks 05.2021 – 08.2021

Next.js, Spring Boot, React Native, TypeScript, PostgreSQL, GCP, Message Queues Chengdu, China

- Developed the **1st** fractionable stock trading app for the Indonesian market, with **1,000,000+** installs
- Boosted scalability by **200%** (projected) by implementing **six distributed microservices** in **Spring Boot**: e.g., stock service, wallet service, notification service, etc.
- Achieved **95%** unit test coverage across six microservices
- **Led** Agile core procedures such as standup meetings and retrospectives for a team of **30** members
- Received “**exceptional**” as the overall feedback during the performance review

Undergraduate Research Assistant | NYU AI4CE Lab 09.2021 – present

Computer Vision, collaborative perception, autonomous driving ai4ce.github.io

- Collaborated with **Dr Chen Feng** and his PhD students on **computer vision** research projects, including the two publications listed above and the CoPerception SDK
- Guided **60+** lab members in using the NYU **supercomputer cluster** through tutoring session

- Built and maintained the **official website** that had **20,000+** visits in total using the **Hugo** framework; Integrated modularized Markdown file rendering into the website

Undergraduate Teaching Assistant | NYU Courant Institute of Math Sciences 01.2022 – present

- Assisted **200+** students by creating illustrations and providing tutoring sessions for the Data Structures class
- Helped **60+** students with **competitive programming** questions for the Algorithmic Problem Solving class

Software Engineering Chair | UCSD Chinese Computer Community 01.2020 – 12.2021

The largest student-based business incubator at UC San Diego github.com/ucsdtriplec

- Reduced project deployment cost by **65%** through refactoring of server and database infrastructures
- Advised **16** tech leads and **80+** developers to ensure efficient product delivery and good engineering practices
- Assisted **500+** students by ideating and conducting **10+** events and educational projects

Undergraduate Research Assistant | UC San Diego 09.2019 – 06.2020

Computer Science and Education geraldsoosairaj.github.io

- Researched with **Dr Gerald Soosai Raj** on how to better teach Java and C++
- Produced a **9-page research paper** on analyzing the topics taught in C++ across 12 universities

PROJECTS

CoPerception | Co-Team Lead 01.2022 – present

PyTorch, NumPy, nuScenes DevKit github.com/coperception

- Developed an open-source SDK for **collaborative perception** tasks in computer vision
- **Co-managed** a development team of **six** software/machine learning engineers
- Implemented **OOP design** and supported **five** collaborative models on **three** different perception tasks
- Received **200+ stars** for the three repositories that directly adapted the SDK

EffiMatch | Tech Lead 01.2020 – 10.2021

React.js, Spring Boot, MySQL, MyBatis, TypeScript, Jenkins, Ant Design bit.ly/effimatch-github

- A web platform to connect **job referrers** and **job seekers**, deployed on **AWS EC2**
- **Led** a cross-functional team of **nine** members to deliver **MVP** within **12** weeks
- Decreased API turnaround time by **30%** by refactoring database access layer using **MyBatis**
- Minimized weekly deployment time from **30** mins to **2** minutes by implementing CI/CD with **Jenkins**

Outline VPN Management Panel | Full-stack Software Engineer 06.2020 – 01.2021

React.js, Feathers.js, MongoDB, Terraform vpn.7debate.club

- Independently developed a platform that provides free and high-speed VPN
- Resolved the Outline API **CORS** problem by implementing a backend proxy server
- Reduced server deployment time by **90%** by automating infrastructure construction with **Terraform**

Earthquake Monitor | Software Engineer 07.2020 – 10.2020

React Native bit.ly/em-dekun

- Designed and developed a real-time earthquake monitoring app on both iOS and Android platforms
- The iOS version ranked in the top **10** of the tools category on the App Store in 2020
- Optimized app startup time by **70%** through caching
- Designed and implemented an immersive UI **dark theme**

Triple C Official Website | Full-stack Software Engineer 01.2021 – 07.2021

Vue, Nuxt.js, Spring Boot, MySQL, AWS Lambda, AWS Amplify bit.ly/ucsdtriplec-github

- Official website and **member management system** for UCSD Chinese Computer Community
- Improved frontend loading time by **50%** by implementing server-side rendering using **Nuxt.js**
- Reduced backend codebase volume by **75%** while maintaining performance

Courum | Tech Lead 11.2019 – 03.2020

React.js, Feathers.js, Express.js, MongoDB, PostgreSQL, Material UI, AWS S3 courum.com

- An **online course forum** for UCSD students
- Supports **3800+** course forums with a lightweight backend
- Built frontend to be **100%** responsive to mobile devices with React.js and Material UI