Nicolas Liu

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Education

Johns Hopkins University, Whiting School of Engineering August 2022 – May 2025
BS in Computer Science and Applied Mathematics & Statistics ***GPA: 3.96*** *Baltimore, MD*

Relevant Coursework: Data Structures, Algorithms, C/C++ Programming, Full-Stack JavaScript, Computer Systems, Database Management, Data Analysis/Visualization in Python, Multivariable Calculus

Activities: Johns Hopkins Association for Computing Machinery, HopAI, Economics Club

Technical Skills

Languages: Java, C/C++, JavaScript, TypeScript, HTML, CSS, SQL, Python (Pandas, NumPy, Pytorch, Tensorflow)
Frameworks: React, Node.js, Next.js, Express.js, Tailwind CSS, Three.js, WordPress, MaterialUI
Tools/Technologies: Git, MongoDB, Firebase, Google Cloud, AWS, OAuth, NextAuth, Prisma, Docker, Vercel

Professional Experience

Full Stack Software Engineer January 2023 – Present
uCredit.me (College Degree Planning Web Application) *Baltimore, MD*

- Worked on uCredit, a user-centric startup serving 200+ users tackling college degree planning and advising built with NextJS, Node.js, React, Redux, MongoDB, Express.js, and TypeScript
- Architected and engineered a dependency parsing engine for future course planning by automating database entries using a custom regex script, building an API endpoint to facilitate efficient retrieval of course information
- Boosted user interactivity and advisor-student communciations by implementing a TypeScript-based REST API endpoint for comment editing with a PATCH request resulting in a 13% increase of comment usage
- Collaborated and communicated with UX team closely to develop front-end React components adhering to design specifications, applying principles of accessibility, usability, and user-centricity
- Practiced Agile principles in twice-weekly standups, biweekly sprints, and end-of-sprint retrospectives

Machine Learning Research Assistant March 2023 – June 2023
Johns Hopkins Carey Business School - Center for Digital Health and AI *Baltimore, MD*

- Collaborated with Welldoc to create AI-driven personalized medicine for diabetes and hypertension U.S. patients
- Predicted patients' future health outcomes by conducting model selection leveraging large-scale patient data processing multidimensional categorical and numerical data with 90% accuracy rate over a 5-month time period
- Evaluated customer retention rate by training Random Forest and Gradient Boosting algorithms on 2700 samples to recommend the Random Forest classifier based on higher Recall, Precision, and Sensitivity values

Front-end Developer February 2023 – Present
Intuitive Computing Laboratory @ Johns Hopkins University *Baltimore, MD*

- Deployed Meta's Segment Anything Model with zero-shot generalization to Google Cloud Run by building a Flask application containerized with Docker to enable web-based user access for mask and layer creation
- Developed a crowd-sourced data collection web application using React, JavaScript, and the Three.js library enabling users to upload and interact with URDF (robotics description) models
- Constructed an intuitive interface for users to drag-and-drop robot joints leading to 67% reductions in motion creation time by leveraging open-source software and applying inverse kinematics algorithms
- Conducted extensive testing and performance optimization to ensure smooth data collection processes from Amazon MTurk participants for faster research study processing

Projects

KiwiClinical - Full Stack Clinical Trial Recruitment Platform Sept. 2023
HopHacks (JHU Hackathon) *Baltimore, MD*

- Won the BGB Health Consulting Group Award by developing a full stack clinical trial connection application, utilizing Mongo DB Atlas for database management and Flask for backend server implementation, with extensive testing through Insomnia API Platform and integration of Twilio API for SMS functionalities
- Engineered a dynamic frontend using React.js, enhanced by Material UI for efficient component construction, encompassing multiple pages with intricate logic and robust communication with the Flask-based API

Renti - Rental Property Platform May 2023
Modernized rental application and property management software *Toronto, Canada*

- Created a user-friendly centralized rental platform with Next.js, Typescript, and Tailwind CSS and MongoDB
- Allowed user registration and login by writing RESTful APIs with OAuth and Google Sign-In for verification
- Utilized web scraping techniques to gather rental listings, enabled listing upload functionality and a secure tenant document upload portal with Bcrypt hashing to offer a smoother and efficient renting experience