JAEYOUNG (JASON) PAK

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SKILLS

Languages (in order of proficiency): Java, JavaScript, HTML/CSS, C, C#, MATLAB, Python, Bash, Rails
Frameworks (in order of proficiency): Git, ReactJS, React Native, Node.js, Unity, AWS, Android Studio

EDUCATION

Dartmouth College   Hanover, NH | **Sep 2020 – June 2024**
Bachelor of Arts, Computer Science and Music   **GPA: 3.99 / 4.0**
- **Honors**: Neukom Institute for Computational Science Scholar, Rufus Choate Scholar (Top 5% Honors), Academic Citation for Meritorious Performance (x2 Recipient), DIFUSE Data Science Lab Grant Recipient

EXPERIENCE

MathWorks   Natick, MA | **Jan 2023 – March 2023**
Software Engineer Intern - Engineering Development Group
- Designed and developed a new **domain specific language (DSL)** that allows users to easily describe, modify, and understand MATLAB Simulink block diagrams, **reducing verbosity by an average of 94%** from its predecessors
- **Built a compiler** in JavaScript that interprets the domain specific language by performing lexical & syntax analysis to represent the input as an abstract syntax tree, then traversing the tree to formulate the appropriate Simulink diagram
- Optimized the compiler by **designing a new data structure** to serve as an intermediate representation (IR) of the input
- Added bidirectional support by **building a compiler** that converts Simulink diagrams back to the domain specific language
- Wrote **unit tests** in JavaScript to verify the performance of each individual unit in the language compiler

Digital Applied Learning and Innovation (DALI) Lab   Hanover, NH | **Sep 2021 – Present**
Software Engineer & Development Mentor
- Delivered software products for clients under 10-week deadlines, working 15+ hours/week while taking courses as a developer for Dartmouth's tech-entrepreneurial program
- Built a **mobile app** in **React Native** where users can anonymize their voice during virtual mental health coaching sessions
- Built a **full-stack web application** using **React & MongoDB** to help ranchers monitor cattle weight during calving cycles
- Learned **Ruby on Rails** to step in and debug the codebase for a behind-schedule launch of a sexual violence prevention program to be used by 1,500+ incoming freshmen at Dartmouth
- Promoted to **Mentor** immediately following my first project in the lab — now I work as the **lead developer** on projects, mentor new members, communicate development updates to the project partners, and review new member applications

Vitalize Care   Remote | **Jun 2021 – Dec 2021**
Software Engineer
- Learned **React Native** to develop the first public beta of a **mobile wellness app** tailored to healthcare professionals
- Built a backend **CRUD API server** using **Node.js, Express, and mongoDB** to handle server requests for app functionality
- Built an analytics webpage using **React** that allows administrators to observe how users interact with the app's features

PERSONAL PROJECTS

AR Drum Set | https://github.com/JY2452/AR-Drumset
- Used **Unity, C#,** and the **Vuforia SDK** for an **augmented reality (AR)** project that allows users to interact with a virtual drum in their surrounding environment to create, record, and save personalized drum tracks to their mobile device

Doodlegram | https://github.com/JY2452/doodlegram-FE
- Built a **full-stack social media site** using **React** for drawing doodles on a virtual canvas to post and share with other users
- Developed a CRUD API using **mongoDB**, **Express,** and **Node.js** for storing user data in a database, while storing image files (the doodles) in **Amazon S3** to reduce server load

Bot-thoven | https://github.com/JY2452/bot-thoven **|** *Nominated for 2021 Hackaday Prize – "Redefine Robots"*
- Built a **xylophone-playing robot** that can be programmed to perform any musical tune, and incorporated musical expressions by programmatically striking the xylophone keys at different speeds and torques

ADDITIONAL INTERESTS

- **Violist of 11 years**: Dartmouth Symphony Orchestra (Manager & Violist), Full-Scholarship @ National Symphony Orchestra's Summer Institute, Study Abroad Program in London, Performed on ABC's Good Morning Washington & the Kennedy Center