MASON REED

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TECHNICAL SKILLS

Languages

- JavaScript ES6 – Node.js, Express.js, React.js, Redux, EJS, jQuery, JSON, JSX
- noSQL – MongoDB, Mongoose
- HTML/CSS – Bootstrap
- Python – Django, Pandas, matplotlib, NumPy
- SQL – MySQL, SQLite

Technologies

- Material-ui
- Git & GitHub, GH-CLI, GH-Pages
- Heroku
- Restful APIs
- MongoDB Atlas
- OAuth 2.0, Passport.js
- DOM (document object model)

Utilities

- LaTeX, Markdown
- Atom IDE
- Robo3T
- MailChimp
- Formspree
- MS Office 365 Suite
- Teams, Zoom
- Slack, Discord

Other

- Linux-based CLI
- RobotC, C++
- FreeCAD
- Unreal Engine 4
- Arduino
- Udemy Platform

PROJECTS

Restaurant PoS: Nodo-Manager | restaurant.monsed.com **May 2021 – August 2021**

- Developed a full stack web application with MongoDB, ExpressJS, ReactJS, NodeJS to be used as a restaurant point-of-sale, usable by sellers and consumers. Hosted on a custom domain with Heroku web services.
- Implemented custom, centralized middleware for error-handling, JSON Web Token authentication and authorization.
- Wrote and passed over 180 API tests with supertest and Jest.
- Created a React hook for frontend form use and custom validation.

Interactive CV Website | resume.monsed.com **February 2021, August 2021**

- Refactored my website from purely HTML and CSS, to using ReactJS and Material-ui; hosted on GitHub Pages.
- Utilized Formspree to send an auto generated email whenever a viewer submits a message.
- Hosts a PDF version of my resume, accessible for download.

Gravbox **January 2017 -- June 2018**

- Organized Cross-functional team collaboration and project management for continuous integration developments. Coordinated group itineraries and division of labor for extended research goals.
- Achieved end-use product from conceptual brainstorming and engineering with a principal investigator.
- Created project website with HTML and W3.CSS, hosted on the department's servers.

AllSky Pipeline **February 2018 -- May 2018**

- Engineered a software pipeline, written in Python, to generate and overlay astronomical coordinate systems on 360° field-of-view images of the night sky.
- Automated linear regression methods to iteratively minimize error between real and expected image data.

EDUCATION

FullStackOpen – Modern Web Application Development with JavaScript **March 2021 – Present**

- Built several single page web applications with front-end development in ReactJS/Redux and backend-development of restful APIs built with NodeJS. Offered as open courseware by the Department of Comp. Sci. at the University of Helsinki.
- Projects required code testing with Jest, SuperTest, react-testing-library, and Cypress; environment configuration and management; and MongoDB Atlas configuration as a remote database.

Udemy – The Complete 2021 Web Development Bootcamp **December 2020 – March 2021**

- Developed several full stack web applications using a MERN development stack. Projects include a workflow tracker with React and a journaling app with OAuth 2.0 and database encryption.
- Self-paced challenges for independent learning of over 55 video-hours of content. Focused on front end web design, back end web design, and web architecture with modern languages, frameworks, and databases.

- Gained knowledge and experience with HTML5, CSS3, Bootstrap, JavaScript, jQuery, JSON, and the software development cycle.

DataQuest – Data Scientist Path **June 2020 – November 2020**

- Honed data analysis skills with the Pandas package in Python by examining over 16 various data sets and creating technical documents to summarize findings.
- Gained introductory skills to SQL, command-line interfaces, Jupyter Notebook, and computer science concepts while strengthening statistical calculations and mathematics.

Bachelor of Science, Astronomy; Physics **May 2018**
University of Iowa, College of Liberal Arts and Sciences *Iowa City, IA*

- Honed effective communication skills for detailed systems and technical concepts by creating over 40 project documentations written with LaTeX.
- Initiated and implemented focused study efforts with colleagues during high work-load courses.
- Computational physics coursework, including a 1D wave-equation solver (numerical derivations).
- Exposure to developing and designing in Python programming language, and general programming skills.
- Proficiency in high-level mathematics, i.e., matrix algebra, vector calculus, differential equations, differential geometry.

EXPERIENCE

Robotics Educator **April 2019 -- October 2020**
Discovery World Science and Technology Museum *Milwaukee, WI*

- Developed STEM-based curriculum for 3rd – 8th grade student groups. Subjects included Unreal Engine 4 game design, Arduino microcontrollers circuitry and programming, Introductory Python 3, Introductory FreeCAD, VEX Robotics with Robot C and Scratch, Astronomy, and Physics.
- Pioneered the implementation of a professional development program, Reflecting on Practice (RoP), within the education department. This included hosting and leading bi-weekly, department-wide, training modules to engage multiple professionals on how to improve their skills through reflection.
- Individually managed and educated up to 25 students per class through week-long, in-person summer camps, and up to 10 students per class through week-long, virtual summer camps specialized in the above topics.
- 100% remote meetings and content delivery during the Covid-19 Pandemic.

Research Assistant **May 2017 -- June 2018**
University of Iowa Department of Physics and Astronomy *Iowa City, IA*

- Presented research to colleagues and superiors on a weekly basis to progress and refine goals while strengthening our problem solving skills and project management skills with verbal communication.
- Concluded preliminary construction and implementation of public outreach device dubbed ‘Gravbox’ used for educating the public on gravitational dynamics via an interactive medium and visual projections, written in Python.
- Created a simple website for the Gravbox project using HTML and W3.CSS. | http://astro.physics.uiowa.edu/gravbox/
- Hosted the Gravbox at the Iowa City STEAM Festival, using verbal communication skills to explain the process and outcome to over 200 individuals of all ages.
- Designed 3D models in Fusion360 for microchannel plate mounting, which required fine attention to detail. These were used for testing charged particle counting electronics in vacuo as experimental verification of theory for space-based instrument applications. Experimented with Monte-Carlo simulations in Python.
- Awarded a 2017 James A. Van Allen Summer Research Grant.

INTERESTS

- AI for Astronomy (classifying galaxy morphologies)
- Computer Vision
- Rust Programming Language
- Video and Mobile Game Design
- Learning