William Hu

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FULL STACK DEVELOPER & REGISTERED NURSE

As a registered nurse and full-stack software engineer, I blend healthcare expertise with proficiency in software development. I bring compassion, analytical strength, and a dedication to creating impactful digital solutions. With a deep understanding of healthcare systems and a human-centered approach, I craft user-centric software solutions. I'm committed to revolutionizing healthcare technology for a healthier and more accessible future.

TECHNICAL & INTERPERSONAL SKILLS

Languages: Python, JavaScript, C#, HTML5, CSS3, SASS, SQL, JSON, Typescript, EJS, DTL
Libraries and frameworks: React, Express.js, Node / Node.js, Django, Jquery, Bootstrap, Tailwind, Semantic UI, Bulma, Passport, OAuth, Mongoose, .NET
Databases and other: PostgreSQL, MongoDB, RESTful Routing, JSON API
Tools: Git, GitHub, SQL, Epic, EMR, OLIS, CCM, Connecting Ontario, PowerChart, ICON, MIMMS
Soft skills: Active listening, positive attitude, empathy, leadership, collaboration, team building, communication, accountability, mentorship, compassion, critical thinking, triaging, prioritization, clinical judgment, documentation
Languages Spoken: English, Cantonese, French

TECHNICAL PROJECTS

10 Questions - GitHub | App - MongoDB | Express | React | Node.js *12/2023*
Daily diagnosis game that leverages OpenAI to challenge clinicians to use their critical thinking and interviewing skills to diagnose patients given an image and 10 chances to ask the patient (portrayed by OpenAI) pertinent questions.

- Engineered an interactive training platform capturing clinician responses, providing lifetime data insights.
- Integrated OpenAI to simulate patient responses during the 10-question diagnostic process.
- Improved user experience with local storage, enabling seamless tracking of responses for non-logged-in users. This feature promotes inclusivity by allowing all users, logged in or not, to review their diagnostic progress.

Hyponatremia Simulation - GitHub | App - MongoDB | Express | React | Node.js *10/2023*
Virtual patient simulator developed to train physicians and advanced practice providers on caring for patients with hyponatremia. Equations used to calculate and model physiological changes to intra- and extracellular compartments.

- Developed full MERN stack application in 1 week development pair programming sprint
- Adopted a model view controller (MVC) approach to organize code, fostering readability and updatability
- Integrated OpenAI API to generate case scenarios and to respond as the patient, ensuring that all cases will be unique
- Collaborated with an expert in nephrology to code backend logic for data analysis and to develop tailored feedback for users based on simulation performance and outcomes.

Renal Consults - GitHub | App - MongoDB | Express | React | Node.js *08/2023*
A tool for nephrologists to automatically generate consult notes for patients based on objective data that is passed in through a simple form. Smart algorithm also generates a list of recommended diagnostic and therapeutic interventions. OpenAI further suggests differential diagnoses and additional interventions to be considered.

- In a 1 week development sprint, created a full stack application using MongoDB, Express, React, and Nodejs
- Coded backend logic for data analysis using RESTful routing and agile development methodology to synthesize consult summary and additional recommended interventions given the submitted form data
- Implemented use of OpenAI API to provide users with a dual-data-processing algorithm, using both hard coded backend data parsing, and OpenAI analysis

Wavelength: Electronic Medical Records - GitHub | App - MongoDB | Express | Nodejs *08/2023*
Fully functional electronic medical record with user authentication using Google OAuth. Integrates OpenAI to automatically generate discharge summaries by parsing through the patient's existing progress notes.

- Developed MEN stack application that integrates AI technology to generate patient discharge summaries to provide an innovative digital solution to one of the biggest causes of hospital backlogs–discharge backlogs
- Adopted a user-centric approach when developing UI and UX by leveraging healthcare background and user experience with numerous other electronic medical records, improving features that did not work well
- Built responsive front-end using Embedded JavaScript to dynamically render pages and data that enhance user experience (i.e. vital signs that appear in red when outside of normal limits)

EXPERIENCE

Med Primers LLC, Freelance Full Stack Developer *Boston, MA (Remote), 10/2023 - Present*

- Spearheaded end-to-end development of diverse health applications, contributing to both front-end and back-end systems at Med Primers LLC.
- Led full stack development of the innovative "10 Questions" daily diagnosis game using OpenAI for clinician challenges.
- Designed and developed the "Hyponatremia Simulation," applying advanced equations for realistic physiological modeling, contributing to effective physician training in virtual patient care.
- Engineered "Renal Consults," an automated tool for nephrologists, streamlining consult note generation and integrating OpenAI for smart algorithm recommendations, optimizing diagnostic and therapeutic interventions.

Toronto Public Health, Public Health Nurse - Shift Lead *Toronto, ON, 02/2021 - 07/2023*

COVID-19 Hotline, Sexual Health, School Immunization Program

- Provided daily support and guidance as a shift lead to a team of 14 healthcare professionals through consultations and 1 on 1 check ins
- Proactively identified and addressed service gaps, guideline discrepancies, and implemented strategic solutions for continuous improvement
- Contributed to the orientation and training process for new team members, ensuring seamless integration by articulating processes, setting expectations, and conducting hands-on simulations and buddy shifts
- Preemptively identified emerging call trends, enabling strategic preparation for upcoming topics and ensuring the team's readiness to address evolving public health concerns.
- Stayed up to date with COVID-19 guidelines, processes, and recommendations on municipal, provincial, and federal levels and provides daily update reports to team
- Provided support to various outbreak settings such as schools, workplaces, and long term care homes through outbreak management and planning processes
- Educated public about various COVID-19 vaccines regarding efficacy and eligibility to promote vaccine confidence

Toronto General Hospital, Registered Nurse *Toronto, ON, 08/2020 - 02/2021*

Nursing Resource Team

- Applied the nursing process in various inpatient care areas in response to short-term absences and changes in acuity or patient volume
- Continued development of diverse clinical knowledge base by accepting responsibility for care of clients in care areas such as general internal medicine, cardiology, vascular and cardiovascular surgery, neurology, spinal surgery, respirology, thoracic surgery, nephrology, multi-organ transplant, emergency department, and COVID-19
- Performed in an independent, client-centered, and self-regulated capacity adherent to CNO standards of nursing practice through autonomous engagement in to nursing process, collaboration with members of the interprofessional team, in addition to accountability-driven practice

LICENSE

Registered Nurse–General Class (College of Nurses of Ontario) *Current*

EDUCATION

General Assembly *Remote, Completed: 10/2023*

Software Engineering Immersive

Full-stack software engineering 420+ hour program focused on product development fundamentals, object-oriented programming, MVC frameworks, data modeling, and team collaboration strategies.

University of Western Ontario *London, ON, Graduated: 04/2019*

Bachelor of Science in Nursing (BScN)

Graduated with Distinction and on Dean’s Honour List.