

Enabling Better Health through Artificial Intelligence (AI – Better Health)



Custom AI Solutions for Better Imaging in Emergency Rooms

PROJECT FAST FACTS

RECIPIENT: University of Alberta, Greg Kawchuk

PROJECT DURATION: 36 months

AWARD: \$799,662

AWARD DATE: March 15, 2024

THE PROBLEM

Clinical decisions made in emergency settings significantly influence disability, mortality, and cost. Artificial intelligence (AI) can optimize these decisions, especially those using diagnostic imaging, by tailoring solutions to the specific needs of healthcare settings, data types, workflows and patient populations. However, developing highly customized AI solutions for specific health conditions is fraught with lengthy and expensive development cycles, data incompatibility, privacy breaches and challenges in applying the solutions to multiple conditions. Additionally, these AI systems often need continuous specialized support, updates, and adherence to evolving privacy regulations, adding to the complexity and cost.

THE SOLUTION

This project uses machine learning to create flexible AI models for different uses instead of building AI solutions from scratch for each new task. These models use transfer learning, a machine learning method where a model trained for one task is repurposed as a new starting point to easily adjust for specific tasks using relatively small additional datasets. This approach not only speeds up the creation of customized AI applications but also enhances their performance, making AI solutions more efficient and accessible across different healthcare settings. These AI systems will be vendor-agnostic, ensuring their seamless integration regardless of the hardware or software environments, further broadening their applicability contexts. The first model will be customized for stroke, followed by low back pain and other emergent conditions (e.g. pulmonary embolism, traumatic brain injury).

PROJECT OBJECTIVES

This team is working to achieve the following goals:

- **Secure and Scalable AI Model for Medical Imaging:** Develop an agile AI pipeline that can be installed locally at emergency healthcare sites, ensuring data privacy and system compatibility.
- **Customizable Decision Support:** Customize the pipeline for specific urgent conditions like stroke and low back pain, enhancing decision support for clinicians.
- **Enhance Clinical Outcomes and Efficiency:** Demonstrate the pipeline's adaptability across various conditions to improve patient outcomes, optimize resource allocation, and increase satisfaction in urgent care settings.



Cercare Medical



[Contact Greg Kawchuk](#)

ABOUT THE ENABLING BETTER HEALTH THROUGH ARTIFICIAL INTELLIGENCE (AI-BETTER HEALTH) PROGRAM

AI-Better Health bridges the gap between the promise and the reality of better health for Albertans. If you'd like to learn more, please check out the Alberta Innovates website.

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