Clinical Research Informatics Strategic Planning Initiative

ChIRP Chatbot for Intramural Research Program

NIH National Institutes of Health
Turning Discovery Into Health

Launch Event | January 7, 2025

U.S. Department of Health & Human Services
National Institutes of Health

Welcome Letter

Dear Colleagues:

On behalf of the Office of Intramural Research (OIR) and the Clinical Research Informatics Strategic Planning Initiative (CRISPI), we are excited to invite you to the Launch Event for the NIH large language model (LLM) pilot of Chatbot for Intramural Research Program (ChIRP).

The ChIRP pilot is a collaboration between OIR; the Office of Data Science Strategy; the Office of the Director; the National Heart, Lung, and Blood Institute; the National Institute on Aging; and the Center for Information Technology. It aims to create a secure LLM environment for NIH staff to safely explore how generative artificial intelligence (GenAI) technology, such as LLMs, can benefit our biomedical research. We are committed to using LLMs ethically and responsibly, balancing innovation with safety.

At this event, you'll learn what ChIRP is and gain insight into its potential uses. We'll provide opportunities for interactive skill building and explore ChIRP's capabilities and limitations. Our goal is for you to leave with practical skills and a better understanding of LLMs and ChIRP.

We value your feedback and suggestions and look forward to your participation. Together, we can explore the promise of LLM technologies and the responsible use of AI technologies at NIH.

Sincerely,

CRISPI Co-leads
Dr. Janice Lee, D.D.S., M.D., M.S.
Dr. Yang Fann, Ph.D.

Dr. Janice Lee,
D.D.S., M.D., M.S.
Deputy Director, Intramural Clinical Research

Dr. Yang Fann,
Ph.D.
Director, Clinical Informatics, Office of Intramural Research

Agenda

10:30 − 10:45 a.m.   **Opening Remarks**
Nina Schor, M.D., Ph.D.
Deputy Director for Intramural Research
Susan Gregurick, Ph.D.
Associate Director for Data Science
Director, Office of Data Science Strategy
Sean Mooney, Ph.D.
Director, Center for Information Technology

10:45 − 11:05 a.m.   **A Look at ChIRP: What, Why, and How**
Yang Fann, Ph.D.
Director, Clinical Informatics, Office of Intramural Research

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11:05 − 11:15 a.m.   **Ethics and Security**
Celeste Dade-Vinson, MSL, CIPP/G
Branch Chief and Senior Official for Privacy, Office of the Director

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11:15 − 11:30 a.m.   **Prompt Engineering and Use Cases**
Alicia Lillich, M.L.S.
Emerging Technologies Specialist, NIH Library

11:30 − 11:55 a.m.   **Demonstration of Use Cases**
Robyn Wyrick, M.S., M.B.A.
System Administrator and Application Developer,
National Heart, Lung, and Blood Institute
Steevenson Nelson, Ph.D.
Program Director, Office of the Director

11:55 − Noon   **Closing Remarks, Adjournment, and Evaluation**
Janice Lee, D.D.S, M.D., M.S.
Deputy Director for Intramural Clinical Research,
Office of the Director

Share Your Thoughts

How was the event?

Please take a moment to complete a brief feedback survey. Your input is anonymous and will help us improve future events.

To submit an evaluation, please visit the ChIRP Launch Event Survey page or use your GFE smartphone to scan the QR code to access the survey.

How has your experience using ChIRP been?

If you have used ChIRP, please tell us about your experience. Candid feedback from users is what makes a pilot grow and thrive. Your input is anonymous.

To submit an evaluation, please visit the ChIRP User Experience Survey page or use your GFE smartphone to scan the QR code to access the survey.

Model on ChIRP

ChIRP is currently using GPT-4o language model. Different LLMs are built with varying architectures, training data, and tuning methods, leading to different outcomes when responding to the same prompt. In addition, each model may interpret nuances, generate creativity, or provide detail in different ways. Lastly, the same model may, and likely will, produce different answers to the same prompt.

Therefore, we encourage users to experiment with ChIRP over multiple sessions to explore responses and determine which reply best aligns with their needs or preferences. This approach will showcase a broader perspective on how a language model may reply slightly differently to a given prompt.

GPT-4o

GPT-4o is a powerful language model developed by OpenAI. Compared to previous versions, GPT-4o offers significant improvements in speed, cost-effectiveness, and performance across various tasks. It's a versatile tool with applications ranging from content creation to customer service.

Acknowledgments

The Clinical Research Informatics Strategic Planning Initiative (CRISPI) Chatbot for Intramural Research Program (ChIRP) project is sponsored by the Office of Data Science Strategy (ODSS) within the NIH Office of the Director (OD) and advised by the Intramural Research Program (IRP) Artificial Intelligence Task Force. Thank you to all our colleagues across NIH.

Leadership
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National Institute of Aging (NIA)

Dr. Faraz Faghri | faraz.faghri@nih.gov | Computer Science Lead Scientist, Center for Alzheimer's and Related Dementias

Dr. Michael Nalls | nallsm@nih.gov | Project Lead, Advanced Analytics, Center for Alzheimer's and Related Dementias

National Institutes of Neurological Disorders and Stroke (NINDS)

Linpei Fan | fanl5@ninds.nih.gov | Lead Project Developer, Informatics Management Section

Resources and Tools

ChIRP
- Chatbot for Intramural Research Program (ChIRP)

Useful Resources on NIH SharePoint
- AI Guidance - Foundational Information, Generative AI and Risks
- Prompt Engineering
- How to create an Azure OpenAI Chatbot
- Other Large Language Models

NIH GenAI Technology and Resources
- NIH STRIDES Initiative
- NIH GenAI Community

NIH Training Events and Resources
- NIH Cloud Lab
- NIH Library Training & Events Calendar
- Data Science Training Events Calendar

AI Resources from the NIH Library
- AI Assurance: Towards Trustworthy, Explainable, Safe, and Ethical AI
- AI in Clinical Medicine: A Practical Guide for Healthcare Professionals
- Application of Artificial Intelligence in Neurological Disorders
- Artificial Intelligence and Brain Research: Neural Networks, Deep Learning, and the Future of Cognition
- Artificial Intelligence and Precision Oncology: Bridging Cancer Research and Clinical Decision Support
- Artificial Intelligence for Neurological Disorders
- Artificial Intelligence in Bioinformatics: From Omics Analysis to Deep Learning, and Network Mining
- Artificial Intelligence in Clinical Practice: How AI Technologies Impact Medical Research and Clinics
- Artificial Intelligence in Drug Design
- Artificial Intelligence-Based Brain-Computer Interface
- Deep Learning in Personalized Healthcare and Decision Support
- Diabetes Digital Health, Telehealth, and Artificial Intelligence
- Explainable Deep Learning AI: Methods and Challenges
- Guardrails: Guiding Human Decisions in the Age of AI
- Machine Learning and Deep Learning in Computational Toxicology
- New England Journal of Medicine AI
- Why Machines Learn: The Elegant Math Behind Modern AI

Note: The HHS Rules of Behavior for General Users are applied to all resources provided in this pilot.