YUEXING HAO

CV Updated on 7/29/2024

Education

IvyPlus Exchange Ph.D Scholar. EECS, Massachusetts Institute of Technology   09/2024 to 05/2025
Laboratory for Information & Decision Systems (LIDS)

Ph.D. Human-Centered Design, Cornell University   09/2022 to 05/2026
Concentrations in AI, Patient-AI Collaboration, and Health Intelligence

M.S. Computer Science, Tufts University   09/2020 to 01/2022

B.A. Computer Science, Rutgers University-New Brunswick   09/2017 to 05/2020

Selected Awards and Fundings (All Awards)

★ **Competitions**
2024 Association of Psychological Science (APS) Student Grant Competition   ($500)
2024 NCWIT Aspirations in Computing Collegiate Honorable Mention Award   ($2,500)
Second Prize of the 2023 IEEE ComSoc Student Competition   ($1000)
The 2020 Interdisciplinary Contest in Modeling (ICM) Meritorious Winner

★ **Travel Awards**
2023 Cornell Institute for Healthy Futures (CIHF) Research Grant   ($500)
ACM SIGCHI 2023 Gary Marsden Travel Award   ($2200)
Microsoft sponsored Knowledge Discovery and Data Mining (KDD) Travel Grant   ($3000)

★ **Research Funds/Fellowship**
2024 Cornell University Departmental Thesis/Dissertation Research Grant   ($1200)
2023 Google CS Research Mentorship Program (CSRMP) Fellow
2023-24 OneReach.ai Academic Fellowship
Life Sciences Technology Innovation Fellowship (LSTIF)
Rutgers Aresty Research Center Undergraduate Research fellowship   ($500)

★ **Service Funds**
Cornell University Graduate and Professional Student Assembly Finance Commission Funding Spring 23' [†],
Summer 23' [†], Fall 23'[†]   ($4200)
Cornell University Human Centered Design Department [†]   ($600)

Publications

1.   **Y. Hao**, J. Holmes, M. Waddle, C. Loeckenhoff, D. Margolin, A. Vashistha, S. Kalantari, W. Liu. Drawing
Borderline for LLM Applications in Healthcare: Developing an Expert-in-the-Loop LLM-Powered Chatbot for

[†]Group/team work
*Equal authorship

Prostate Cancer Patients. *(Under Review)*

2.   **Y. Hao**, C. Loeckenhoff, H. Lee, J. Zwerling, S. Kalantari. *Companion of the 2024 Computer-Supported Cooperative Work and Social Computing* (CSCW 24'). https://doi.org/10.1145/3678884.3681841

3.   **Y. Hao.** Outcome First or Overview First? Optimizing Patient-Oriented Framework for Evidence-Based Healthcare Treatment Selections with XAI Tools. *Companion of the 2024 Computer-Supported Cooperative Work and Social Computing* (CSCW 24'). https://doi.org/10.1145/3678884.3681859

4.   **Y. Hao**, R. Ries, C. Papudesu, J. Ryoo, H. Lee, R. Ying, L. Sun. HUG Smart Sticker: Enhancing Personalized Intelligent Medication Management for Community-Dwelling Older Adults with an AIoT Intervention. *(Under Review)*

5.   J. Feng, J. Liang, Z. Qiang, **Y. Hao**, X. Li, L. Li, Q. Chen, G. Liu, H. Wei. A hybrid stacked ensemble and Kernel SHAP-based model for intelligent cardiotocography classification and interpretability. BMC Med Inform Decis Mak 23, 273 (2023). https://doi.org/10.1186/s12911-023-02378-y

6.   A. Gupta *, **Y. Hao** *, Y. Yang *, T. Yuan *, M. Wieland, P. Basran, K. Birman. Digital Twin-Driven Teat Localization and Shape Identification for Dairy Cow. *Accepted to Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI-24) Student Poster Program.* https://ojs.aaai.org/index.php/AAAI/article/view/30450

7.   **Y. Hao**, Z. Liu, B. Riter, S. Kalantari. Advancing Patient-Centered Shared Decision-Making with AI Systems for Older Adult Cancer Patients. *In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24), May 11--16, 2024, Honolulu, HI, USA. https://doi.org/10.1145/3613904.3642353*

8.   **Y. Hao**, Z. Liu, M. Safford, R. Tamimi, S. Kalantari. An Exploratory Study of Shared Decision-Making (SDM) for Older Adult Patients with Chronic Diseases. *In Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing (CSCW '23 Companion). Association for Computing Machinery, New York, NY, USA, 12–16. https://doi.org/10.1145/3584931.3607023*

9.   Y. Qian, **Y. Hao***, K. Quan*, S. Yang*, Y. Zhao*, V. Kuleshov, F. Wang. Harnessing Biomedical Literature to Calibrate Clinicians' Trust in AI Decision Support Systems. *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23). Association for Computing Machinery, New York, NY, USA, Article 14, 1–14. https://doi.org/10.1145/3544548.3581393*

10.   Y. Fei, F. Chen, L. He, J. Chen, **Y. Hao**, X. Li, G. Liu, Q. Chen, L. Li, H. Wei. Intelligent classification of antenatal cardiotocography signals via multimodal bidirectional gated recurrent units. *Biomedical Signal Processing and Control, Volume 78, 2022, ISSN 1746-8094, https://doi.org/10.1016/j.bspc.2022.104008.*

11.   **Y. Hao**, V. Bellotti. OOTOMS: Outcome-Oriented Techniques for User's Optimized Model Selections using Visualization Tools. *Workshop of Human-Centered Design of Symbiotic Hybrid Intelligence 2022.*

12.   **Y. Hao**, M. Vaysiberg. Dynamic Strategies and Opponent Hands Estimation for Reinforcement Learning in Gin Rummy Game. *Intelligent Systems and Applications. IntelliSys 2021. Lecture Notes in Networks and Systems, vol 294. Springer, Cham.*

13.   **Y. Hao**, G. Shafer. Models for Predicting Global Plastic Waste. *Rutgers University Research Journal*

(RURJ), Spring 2021.

14.   R. Cai, Z. Liang, B. Xu, Z. Li, **Y. Hao**, Y. Chen. TAG: Type Auxiliary Guiding for Comment Generation. *58th Association for Computational Linguistics (ACL), 2020.*

15.   R. Cai, W. Di, X. Chen, **Y. Hao**. Dual-Dropout Graph Convolutional Network for Predicting Synthetic Lethality in Human Cancers. *Bioinformatics, btaa211,2020.* *https://digital-library.theiet.org/content/journals/10.1049/iet-ipr.2019.0716*

16.   M. Wang, Y. Liang, L. Chen, **Y. Hao**, H. He, C. Li. Single Image Rain Removal with Reusing Original Input Squeeze-and-Excitation Network. *IET Image Processing, 2020.*

Projects   <kbd>University Internal Scholarship</kbd>   <kbd>External Scholarship</kbd>   <kbd>Industry Scholarship</kbd>

LLM in Empowering Complex Treatment Decision-Making Process   09/2023 to Current
Mayo Clinics   – Ithaca, NY
❖   Rad Onc GPT involved NLP tasks (evaluated using metrics like BLEU, ROUGE, and accuracy) and computer vision (assessed using precision, recall, F1 score, and IoU), involving an application in Mayo Clinic's prostate cancer research.
❖   Explore LLM's capability in potentially empowering minoritized, older adult cancer patients to make informed decisions and personalized education during cancer treatment process
❖   Utilize GPT 3.5 and 4 API to fine-tune and train the explain and engage LLM model
<kbd>OneReach.ai Fellowship</kbd>

Patient-Centered Shared Decision-Making with AI Systems for Older Adult Cancer Patients
                                                                        01/2023 to Current
Cornell Design and Augmented Intelligence Lab (DAIL)   – Ithaca, NY
❖   Developed AI algorithms to analyze medication dosage patterns and make predictions. Employed SQL queries to extract and process users' medication dosage data and utilized AWS S3 for data storage and management, ensuring scalability and reliability.
❖   Designed an aging user-friendly interface for improved accessibility.
❖   Conducted a prototyping study and usability study with 25 older adult participants.
<kbd>Alan D. Mathios Research & Service Grant</kbd> <kbd>NCWIT AiC Collegiate Award</kbd> <kbd>Cornell Graduate School Research Travel Grant</kbd> <kbd>Cornell Institute for Health Future (CIHF) Conference Funding</kbd> <kbd>Cornell Engaged Research Seed Grant</kbd>

AIoT-Based Patient-Centered Medication Management Intervention   04/2022 to Current
HUG Med.Inc   – Ithaca, NY
❖   Developed AI algorithms to analyze medication dosage patterns and make predictions. Employed SQL queries to extract and process users' medication dosage data and utilized AWS S3 for data storage and management, ensuring scalability and reliability.
❖   Designed an aging user-friendly interface for improved accessibility.

- ❖ Conducted a prototyping study and usability study with 25 older adult participants.
- ❖ Provision Patent (D10677) Pending through Cornell Technology Licensing (CTL).

IEEE ComSoc Second Prize **Human Spirit Fellowship** **Tufts $100k New Ventures Competition (Semi-Final)**

Digital Twin-Driven Platform for Dairy Cow Management   04/2022 to Current
Cornell Institute for Digital Agriculture (CIDA)   − Ithaca, NY
- ❖ Employed Machine Learning models (DINO, YOLO-F, and Faster R-CNN) to explore dairy teat localization and shape classification using a preliminary dataset of 348 images with 968 objects from 4 distinct classes.
- ❖ Built a Digital Twin-Driven platform for commercial dairy farm owners to smartly monitor the real-time barn sprinkler system to reduce water usage and improve barn management efficiency, employing computer vision techniques.

AAAI 24' Student Scholarship

AI-Infused Literature-Based Clinical Decision Support System (CDSS)   03/2022 to 03/2023
Cornell Designing AI Lab   − Ithaca, NY
- ❖ Conducted 9 qualitative clinician interviews to understand the role of literature in clinical decision-making.
- ❖ Applied skills in JavaScript and CSS for front-end interface development.
- ❖ Explored innovative methods for enhancing explainable artificial intelligence (XAI) in CDSS.

ACM SIGCHI Gary Marsden Travel Award

VitalMask Software   03/2022 to 08/2023
Vita Innovations.Inc   − Ithaca, NY
- ❖ Built a streamlined software platform using Python for nurses to view all patient data at a glance while actively tracking changes in patients' urgency of need through a priority scoring system.
- ❖ Provided continuous vital monitoring which will be used to re-prioritize patients as they wait in hospital waiting rooms, ultimately addressing the consequences of ED overcrowding.

Pallia Care System   01/2021 to Current
Tufts University   − Boston, MA
- ❖ Built outcome-first and stage-first frameworks for users by reversing the traditional visual information mantra "Overview first, Details on demand."
- ❖ Guided HCI design process of requirements analysis followed by iterative design and evaluation of prototypes.
- ❖ Visualized healthcare and medical data and classified patients' information and designed a new data system that helps users find the best healthcare treatment option based on users personal needs.

Tufts Graduate Student Research Grant **Tufts Graduate Student Travel Fund**

Story Illustration - From Texts to Images   08/2019 to 05/2020
Rutgers Intelligent Visual Interfaces Lab (IVI lab)   − New Brunswick, NJ
- ❖ Assisted in research support of data processing operations for large survey research projects.
- ❖ Displayed visual story illustrations from the consequences of texts, by using machine learning languages in Python like PyTorch

Rutgers Aresty Research Fellowship

Working History

AI Research Intern   03/2024 to Current
Mayo Clinic Radiation Oncology Department   – Pheonix, AZ

Ph.D. Research Fellow   03/2022 to Current
Cornell University   – Ithaca, NY

Software Research Lead   03/2022 to 08/2023
Vita Innovations   – Ithaca, NY

Data Scientist Intern   09/2021 to 01/2022
Keva Health   – Lexington, MA

Graduate Teaching Assistant   09/2020 to 12/2021
Tufts Computer Science Department   – Medford, MA

Journal of Big Data: Theory and Practice (JBDTP) Assistant Editor   05/2020 to 09/2020
New Jersey Big Data Alliance (NJBDA)   - Remote

Selected Press

★ **2024**
  ○ Kristen Fischer, Report: AI tool could boost communication for older adults with cancer, McKnight's Long-Term Care News.
  ○ Emily Groff, AI may improve doctor-patient interactions for older adults with cancer, Cornell Chronicle
  ○ Ananya Gambiraopet, Life Sciences Technology Innovation Fellowship announces 2023-24 cohort. *Cornell Chronicle*
  ○ Entrepreneurship at Cornell 2023. W.E. Cornell Welcomes Fifth Cohort. *Eship.cornell*
★ **2023**
  ○ **Y. Hao**, Z. Liu, S. Tang, H. Zhao, G. Guo. Pending US provision patent through Cornell Center for Technology Licensing (CTL) - HUG Intelligent Medication Management System (docket number 10677).
  ○ CSCW 2023. Can Grandma Be Involved in Her Next Clinical Decision? *Medium.com*
  ○ Marisa LaFalce, Human connection and collaboration are common threads among CHI presentations, *Human Centered Design*
  ○ Frank Landymore, New AI Gives Doctors Advice on Patient's Ailments Like A Human Colleague, futurism.com
  ○ Patricia Waldron, AI tool gains doctors' trust by giving advice like a colleague, *Cornell Chronicle*
  ○ Cornell Graduate School, Eight Students Advancing to 3MT Finals, *Cornell Announcement*

★ **2022**
- Haining Zheng, The 5th International Workshop on Artificial Intelligence of Things (AIoT) at KDD 2022, *LinkedIn Newsletter*
- Laura Gallup, Teams take a crack at world food issues at digital ag hackathon, *Cornell Chronicle*

★ **2021**
- Weatherhead Center, Disrupted Lives: Linking, De-linking and the Infrastructures of Recovery, *Harvard University*
- Senior Exhibit, Story Illustration – From Texts to Images, *Rutgers Aresty Research Center*
- Department News, Rutgers undergraduate receives "Meritorious Performance" award in Modeling contest, *Rutgers University School of Arts and Sciences*

Invited Presentations

1. **[Best Presentation] Speaker** at 2024 Symposium on Artificial Intelligence in Veterinary Medicine (SAVY). *AI-Based Cows' Teat Shape and Skin Condition Identification for Smart Dairy Farm*. Ithaca, NY. (April 2024)
2. **Keynote Speaker** at 2024 Greg Smith Palliative Care Summit, Hyde Park, NY. *Advancing Palliative Care with AI.* (Feb 2024)
3. **Guest Speaker** at Google Computer Science Research Mentorship Program (CSRMP), remote. *Explain and Enhance: Patient-Centered Learning With LLM from the Public Online Health Forum.* (Dec 2023)
4. **Guest Lecture** at Stanford University HCI Group Event, Stanford, CA. *AI Integration in Healthcare for Community-Dwelling Older Adults.* (Nov 2023)
5. **Panelist** at Women Entrepreneurship (W.E.) Cornell Role Model Conversation (Sep 2023)
6. **Guest Lecture** at Cornell Design User Experience with Technology Studio. *Improving College Students' Emotional Well-being through Virtual Environmental Problem-Solving Task: An Investigation of the Impact of Cognitive Style.* (Aug 2023)
7. **Poster Presentation** for New York Academy of Sciences: The New Wave of AI in Healthcare. *AI-Enhanced Patient-Centered Clinical Shared Decision-Making (SDM): A "Black Box" Study with Older Adults.* (May 2023)
8. **Speaker** for Women in Data Science (WiDS)-Stanford University Workshop. *Health Intelligence for Future - Building AI-Infused Clinical Decision Support Systems.* (Apr 2023)
9. **Seminar Presentation** for Cornell College of Human Ecology. *Bridging Gaps between Innovation and Impact: Enhancing Usability of Assistive Technology for Older Adults.* (Apr 2023)
10. **Guest Presentation** for Weill Cornell Payne Whitney Women's Program. *Health Intelligence for Future.* (Feb 2023)
11. **Guest Lecture** for Columbia Nursing Visualization Design Studio. *Health Intelligence for Future - Building AI-Infused Clinical Decision Support Systems.* (Dec, 2022)
12. **Short Talk** on KDD AIoT Workshop. *Agriverse: Agriculture Metaverse* (Aug, 2022)
13. **Guest Presentation** on ICML AI&Woman Event. *HamletEye: An AI-Powered Patient-Oriented Clinical Decision Framework Using Visualization Tools* (Jun, 2022)
14. **Poster Presentation** for the 5th Annual Primary Care & Hospital Medicine Innovations Symposium at Cornell University. (Feb, 2022)
15. **Poster Presentation** for the second annual Graduate Research Science and Technology Studies (Grists) at Harvard University. (Oct, 2021)
16. **Poster Presentation** for Women in Data Science-Cambridge Initiative (Mar, 2021)

Reviews

★ ACM (Association of Computing Machinery) 2024 Fairness, Accountability, and Transparency Conference (FAccT) <u>Registration Co-Chair</u>, <u>Program Committee (PC) member</u>

★ IEEE VR 2024 <u>Paper Reviewer</u>

★ ACM CHI conference on Human Factors in Computing Systems 2024 <u>Late-Breaking Work (LBW) Area Chair</u>, <u>Paper Reviewer</u>

★ IEEE VIS 2023 Alt.Vis <u>Workshop Reviewer</u>

★ ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW) 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW) 2023 <u>Paper Reviewer</u>, <u>Posters Associate Chair</u>, 2024 <u>Paper Associate Chair</u>

★ AMIA 2023 Annual Symposium <u>Abstract Reviewer</u>

Professional/Volunteer Services

❖ **2024**
  ➢ Expanding Your Horizons (EYH) at Cornell 2024 Chair
  ➢ Sigma Xi Scientific Research Honor Society Member (ID: 20249990735)
  ➢ Association for Women in Science (AWIS) Member (ID: 2092)

❖ **2023**
  ➢ Graduate Women in Science (GWIS) Member
  ➢ IEEE Graduate Student Member (ID: 99480042)
  ➢ American Psychological Association (APA) Graduate Member (ID: C2304462639)
  ➢ Colman Inclusive Leadership Program
  ➢ Cornell University Human-Centered Design Graduate Student Association (HCD GSA) 2023-2024 President
  ➢ ACM Special Interest Group on Computer-Human Interaction (SIGCHI) Student Member (No. 2389305)
  ➢ Cornell Center for Health Equity (CCHEq) Member
  ➢ Society of Women Engineer (SWE) (ID: 2113201)

❖ **2022**
  ➢ Volunteer of Cayuga Medical Center Outpatient Care Coordination (Fall 2022)
  ➢ Organizer of 2022 Cornell + Miller Knoll Innovation Challenge for *Future Healthcare Solutions*. (Nov, 2022) Handbook

Mentorship

1. Peer Mentor for Cornell MAC (Multicultural Academic Council) 2023-24 Mentoring Program
2. Grace Hopper Celebration (GHC) 2023 Open Source Day Mentors
3. Kexin Quan (UCSD Electrical & Computer Engineering M.S., now IS PhD at UIUC, Summer 22')

4.   Zeyu Liu (Cornell Human-Centered Design M.S., Fall 22', Spring 23')
5.   Sabrina Tang (Cornell Human Development B.S., Fall 22')

Teaching Experience

Cornell University Teaching Assistant
DEA 2203: StudioSHIFT (Spring 2024);
DEA 3030: Materials for Design and Sustainability (Spring 2024);
DEA 3500: The Ambient Environment (Fall 2023);
DEA 4025 - Design for Change: Imagining Decolonial Futures (Fall 2023);
Policy Meets Design: High-Impact Facilities of the 21st Century (Fall 2022);
Planning and Managing the Workplace: Evidence-Based Design (Fall 2022);
Healthcare Innovations (Spring 2022)

Tufts University Teaching Assistant
Introduction to Machine Learning and Data Mining (Spring, Fall 2021)
Deep Neural Network (Fall 2020)

Rutgers University Teaching Assistant
Data 101 (Spring 2020)
Introduction to Computer and Application (Fall 2019, Summer 2020)

References

Saleh Kalantari, Ph.D. Assistant Professor at Cornell University. (sk3268@cornell.edu)
Monika Safford, M.D. John J. Kuiper Professor of Medicine at Weill Cornell Medicine.
(mms9024@med.cornell.edu)