



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster theme: **Agriculture**

Names and contact	Project title and poster link
Carley Fisher-Maltese, cfisherm@gmu.edu ; Lisa Gring-Pemble, lgringpe@gmu.edu	FW-HTF-P: Data Science to Save Bees and Transform the Future Work of Beekeepers
Maaz Gardezi, maaz@vt.edu ; Donna Rizzo; David Clay; Asim Zia; John McMaine	FW-HTF-RL: Testing a Responsible Innovation Approach for Integrating Precision Agriculture (PA) Technologies with Future Farm Workers and Work

Poster themes: **Communications & Media**

Names and contact	Project title and poster link
Kevin Crowston; Keren Henderson; Jeffrey Nickerson; Mark Hansen; Lydia Chilton, chilton@cs.columbia.edu	Collaborative Research: FW-HTF-R: The future of news work: Human-technology collaboration for journalistic research and narrative discovery
Sinem Mollaoglu, sinemm@msu.edu ; Kenneth Frank, kenfrank@msu.edu ; Jiliang Tang, tangjili@msu.edu ; Richard DeShon, deshon@msu.edu ; Hanzhe Zhang, hanzhe@msu.edu	FW-HTF-RM: Intelligent Social Network Interventions to Augment Human Cognition for Interdisciplinary Interactions in Project Teams



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster themes: **Construction & Infrastructure**

Names and contact	Project title and poster link
Xiaoli Yang; Quamar Niyaz; Sidike Paheding; John L. Estrada; Isaac Sikma; Jeevan S. Devagiri; Abel Reyes	Collaborative Research: FW-HTF-P: IntelEUI: Artificial Intelligence and Extended Reality to Enhance Workforce Productivity for the Energy and Utilities Industry
A. Srivastava; S. Basumallik; P. Whitney; S. Lotfifard; A. Bose; A. von Meier; G. Biswas; A. Dubey; R. Podmore; M. Legatt; J. Obradovich; S. Murphy; E. Andersen; A. Ashok; M. Cassiadoro; H. Zhang; K. Abdul-Rahman; A. Janisko	FW-HTF: Collaborative Research: Augmenting and Advancing Cognitive Performance of Control Room Operators for Power Grid Resiliency
Craig Woolsey, cwoolsey@vt.edu	FW-HTF: First Person View and Augmented Reality for Airborne Embodied Intelligent Cognitive Assistants
Z. Zhu; P. Adamczyk; F. Dai	FW-HTF-P: Collaborative Research: Exoskeleton-Assisted Worker Performance Augmentation in Construction
Kereshmeh Afsari, keresh@vt.edu ; Kaveh Akbari Hamed, kavehakbarihamed@vt.edu ; Rafael Patrick, rncp@vt.edu	FW-HTF-P: Inspector Assistant Robot for Future Construction Progress Monitoring
Eric Jing Du; Kent Crippen; Xiao Yu; Jonathan Adams; Zhuoyuan Song; Michael Krieg; Shuai Li; Kevin McSweeney; Feng Wen; Eric Jing Du, eric.du@essie.ufl.edu	FW-HTF-R/Collaborative Research: Human-Robot Sensory Transfer for Worker Productivity, Training, and Quality of Life in Remote Undersea Inspection and Construction Tasks
Behzad Esmaeili, besmaeil@gmu.edu ; Sogand Hasanzadeh, Sogandm@purdue.edu ; Sarah Karalunas; Craig Yu; Brenda Bannan; Vincent Duffy; Maurice Kugler	FW-HTF-R: Collaborative Research: Worker-AI Teaming to Enable ADHD Workforce Participation in the Construction Industry of the Future
G.D. Chen, gchen@mst.edu ; R.W. Qin; Z.Z. Yin zyin@cs.stonybrook.edu ; D. Nembhard, david-nembhard@uiowa.edu	FW-HTF-RM: Collaborative Research: Assistive Intelligence for Cooperative Robot and Inspector Survey of Infrastructure Systems (AI-CRISIS)
Youngjib Ham, yham@tamu.edu ; Hangu Park; Mindy Bergman; Camille Peres; Jeonghee Kim; Thomas Ferris	FW-HTF-RM: The Future of Teleoperation in Construction Workplaces
J. Camp, janey.camp@vanderbilt.edu ; J. Gilligan; Z. Tzankova; S. Ivey; A. Hill; B. Waldron; P. Sengupta	FW-HTF-P: Integrating Practitioner Knowledge and Technology for the Future of Water Treatment



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster themes: **Creative & Gig Work**

Names and contact	Project title and poster link
Ingrid Erickson, imericks@syr.edu ; Melissa Mazmanian, mmazmani@uci.edu	Collaborative Research: FW-HTF-RM: Augmentation for Tomorrow: Expanding the Future Capacities of Independent Workers
Akane Sano, akane.sano@rice.edu ; Deepak Ganesan, dganesan@cs.umass.edu ; Tauhidur Rahman, trahman@cs.umass.edu	FW-HTF: Collaborative Research: An Embodied Intelligent Cognitive Assistant to Enhance Cognitive Performance of Shift Workers
Joelle Abramowitz, jabramow@umich.edu	FW-HTF-P Understanding Gig Work and its Effects on Wellbeing over the Life Course in the United States: A Machine Learning Approach
Raffaella Borasi, rborasi@warner.Rochester.edu ; Mark Bocko; Zhiyao Duan; Rachel Roberts; Joseph Testani	FW-HTF-P: Exploring Creative Design at the Human-technology Frontier Through the Emerging Artist-technologist Occupation
Nhut Ho, nhuttho@csun.edu	FW-HTF-P: Workers and Technology Together (WATT)
Norma Saiph Savage, s.savage@northeastern.edu	FW-HTF-RL: Collaborative Research: Enabling Marginalized Rural and Urban Digital Workers to Collaborate with AI to Learn Skills, Increase Wages, and Access Creative Work
H.C. Robinson; Michael Kane; Ozlem Ergun; Steven Vallas; Juliet Schor	FW-HTF-RM: Collaborative Research: Understanding the Algorithmic Workplace: A Multi-Method Study for Comprehensive Optimization of Platforms
Julia Ticona, Julia.ticona@asc.upenn.edu	RAPID: Gig Service Workers and the COVID-19 Pandemic: Assessing Financial Impacts, Relief Attitudes, and State Policies



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster themes: Education & Training

Names and contact	Project title and poster link
Thomas Brush; Krista Glazewski; Cindy Hmelo-Silver; James Lester, lester@ncsu.edu ; Bradford Mott	Collaborative Research: FW-HTF: Augmented Cognition for Teaching: Transforming Teacher Work with Intelligent Cognitive Assistants
Kurt VanLehn, kurt.vanlehn@asu.edu	FW-HTF: The future of classroom work: Automated Teaching Assistants
George Banks, gbanks3@uncc.edu ; Wenwen Dou, wenwen.dou@uncc.edu ; Srijan Kumar, srijan@gatech.edu ; Scott Tonidandel, scott.tonidandel@uncc.edu	FW-HTF-P: Collaborative Research: Artificial Intelligence-Supported Development of Future Organizational Leaders
Conor Walsh, walsh@seas.harvard.edu	FW-HTF-P: Future of Work for Strength and Movement Training Professionals
Shivakumar Sastry, ssastry@uakron.edu ; Kavitha Chandra; Susan Tripathy; Charles Thompson	FW-HTF-P: Collaborative Research: Participatory Design Process for Co-Creating Augmented Reality Based Education and Training Systems

Poster themes: Emergency & First Response

Names and contact	Project title and poster link
A. Lu; W. Wang; A. Zhou, azhou@ncat.edu ; W. Zhao	FW-HTF: Future of Firefighting and Career Training – Advancing Cognitive, Communication, and Decision Making Capabilities of Firefighters
Dr. Sharad Sharma, ssharma@bowiestate.edu	FW-HTF-P: Immersive Virtual Reality Instructional Modules for Response to Active Shooter Events
Nader Jalili; Darrin Griffin; Christian Cousin, cacousin@eng.ua.edu	FW-HTF-P: Mitigating Risks in Future Police Work through Social Telerobotic Communication
Rob Grace, rob.grace@ttu.edu	FW-HTF-P: Transforming 911 dispatchers into Next-Generation 911 analysts: Sustainable innovation for training, workflow, and technology resources for NG911 emergency communications
Michael Bazzocchi, mbazzocc@clarkson.edu ; Sean Banerjee; Natasha Banerjee; Kevin Fite; Marcias Martinez	FW-HTF-P: Firefighter Exoskeleton for Navigation In eXtreme Environments (FENIXE)



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster theme: **Healthcare Part 1**

Names and contact	Project title and poster link
Sara Singer; Theadora Sakata, twsakata@stanford.edu ; Roger Bohn, rbohn@stanford.edu	Attitudes toward LEAF patient monitoring sensors for turning patients in an academic intensive care unit (ICU)
O. Nov; Y. Aphinyanaphongs; R. Chunara; G. Dove; D. Mann; O. Ogedegbe; M. Porfiri; J. Rizzo; A. Schoenthaler; B. Wiesenfeld	Co-Development of Telehealth, Remote Patient Monitoring, and AI-based Tools for Inclusive Technology-Facilitated Healthcare Work of the Future
Elizabeth Murnane, emurnane@dartmouth.edu ; Kaiping Chen, kchen67@wisc.edu ; Matthew Louis Mauriello, mlm@udel.edu ; Larry Leifer, eifer@stanford.edu	Collaborative Research: FW-HTF-P: Supporting future crisis line work through the inclusive design of worker-facing tools that empower self-management of wellbeing and performance
Roger Azevedo; Varadraj Gurupur; Mark Neider; Mindy Shoss; Dario Torre; Varadraj Gurupur, varadraj.gurupur@ucf.edu	FW-HTF-P: Augmenting Healthcare Professionals' Training, Expertise Development, and Diagnostic Reasoning with AI-based Immersive Technologies in Telehealth
Amir M. Rahmani, a.rahmani@uci.edu ; Adeline Nyamathi; Nikil Dutt	FW-HTF-P: D-CCC: Digital Health for Future of Community-Centered Care
Jason Etchegaray, jetchega@rand.org ; Julia Bandini, jbandini@rand.org ; Daniel Siconolfi; Katie Feistel	FW-HTF-P: Engaging Stakeholders to Understand and Prepare for Future Work and Future Technology in the Home Care Setting
Sang-Eun Song, s.song@ucf.edu ; Damla Turgut; Dawn Eckhoff; Hansen Mancy; Michelle Taub	FW-HTF-P: Future Telemedicine Technologies and Multidisciplinary Workforce Readiness
E. Akçali, akcali@ise.ufl.edu ; Benjamin Lok; Charles Peek, Shaboo Valipoor, Jade Williams; Rosemarie Fernandez; Mary Patterson	FW-HTF-P: Mapping the Human-Technology Frontier to Improve Trauma Care: A Transdisciplinary Approach to Identify Opportunities, Challenges, and Risks
Stephen P Seslar, ssesla@uw.edu ; Blake Hannaford; Tadayoshi Kohno	FW-HTF-P: Planning for the future of rural telerobotic surgical healthcare
Casey Canfield, canfieldci@mst.edu ; Cihan Dagli; Daniel Shank; Krista Lentine; Mark Schnitzler	FW-HTF-P: Teaming Transplant Professionals and Artificial Intelligence Tools to Reduce Kidney Discard



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster theme: **Healthcare Part 2**

Names and contact	Project title and poster link
Selma Šabanović, selmas@indiana.edu ; Hamid Ekbia; Nathan Ensmenger; Staša Milojević	FW-HTF-P: The Future Matrix of Care: Communities, Networks, and Technologies
Denny Yu, dennyu@purdue.edu ; Vaneet Aggarwal; Tera Hornbeck	FW-HTF-R: Biometrics and AI to Support Expert Nurse Decision-Making
O. Nov; Y. Aphinyanaphongs; D. Mann; Y. Lui; M. Porfiri; J. Rizzo; B. Wiesenfeld; M. Ried	FW-HTF-RL: Collaborative Research: Future expert work in the age of “black box”, data-intensive, and algorithmically augmented healthcare
Leanne Chukoskie, l.chukoskie@northeastern.edu ; Pamela Cosman, pcosman@eng.ucsd.edu	FW-HTF-RL: Neurodiversity in Tech: Using Interactive Decision Theory and Augmented Reality to Enable Employment for Adults with Autism Spectrum Disorder
Slobodan Vucetic, vucetic@temple.edu ; Don Hantula; Matt Tincani; Eduard Dragut; Ray Hong	FW-HTF-RL: Personalized Virtual Job Assistants to Prepare Individuals with Neurodevelopmental Disabilities for Entry Level IT Jobs
Neal Sikka; Claudia Ranninger; Colton Hood; Adam Rutenberg; Krzysztof Pietroszek; Manuel Rebol	FW-HTF-RM Collaborative Research: Augmenting Remote Medical Procedure Training and Assistance with Spatial Computing and Volumetric Capture
Dan Popa, dan.popa@louisville.edu ; Olfa Nasraoui, M Cynthia Logsdon; Bryan Edwards; William Paiva'	FW-HTF-RM: Enhancing Future Work of Nursing Professionals through Collaborative Human-Robot Interfaces
Sara Singer; Roger Bohn, rbohn@stanford.edu ; Theadora Sakata, twsakata@stanford.edu	Sometimes useful, sometimes an impediment: Intensive care workers’ attitudes toward advanced technologies
Arjun P. Athreya, athreya.arjun@mayo.edu ; William V. Bobo, bobo.william@mayo.edu	FW-HTF-RM: Introducing Patient-Specific Therapy Profiles in Electronic Health Records for Guiding Treatment Selection in the Era of Genomic Medicine
Helena Mentis, mentis@umbc.edu ; Anita Komlodi; Andrea Kleinsmith; Christine Yee	FW-HTF-P: Telemedicine at Scale: Expanding the Healthcare Workforce and Healthcare Access



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster themes: **Hospitality & Services**

Names and contact	Project title and poster link
Huei-Yen Chen, winchen@buffalo.edu ; Thomas Covey; Eduardo Mercado; Ann Bisantz	FW-HTF-P: Supporting an Aging Workforce in Future Transportation and Delivery Work
Shelia R. Cotton, scotten@clemsun.edu ; Elizabeth A. Mack; Chu-Hsiang Chang; J. Kevin Ford; Peter Savolainen; John Verboncoeur; Troy Hale; Amy M. Schuster; Shubham Agrawal; Sicheng Wang	FW-HTF-RL: Preparing the Future Workforce for the Era of Automated Vehicles
Jodi Forlizzi, forlizzi@cs.cmu.edu	Upskilling Workers and Re-designing Workplaces for the Future of Automation in the Hospitality Industry



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster themes: **Inclusivity & Ethics**

Names and contact	Project title and poster link
Henry Fuchs; Jeremy Bailenson; Michael Lewek; Hanseul Jun; Husam Shaik	FW-HTF: Collaborative Research: Enhancing Human Capabilities through Virtual Personal Embodied Assistants in Self-Contained Eyeglasses-Based Augmented Reality (AR) Systems
Deb Doing, ddonig@calpoly.edu ; Matthew Harsh	FW-HTF-P: Assessing the profession of ethical technology for the future of tech work
Francesco Cafaro, fcafaro@iu.edu ; Erin Brady, brady@iupui.edu	FW-HTF-P: Building Research Capacity by Technological Interventions in Support of Mixed-Ability Workplaces
Andrea Miller, amiller@ncsc.org	FW-HTF-P: Impacts of Artificial Intelligence and Remote Conferencing on Work Practices and Equity in State Courts
Rabindra Ratan, rar@msu.edu ; Maxwell Foxman; Alex Leith; Adam Liszkiewicz; David Beyea; Brian Klebig; Brian Winn	FW-HTF-R: Collaborative Research: Virtual Meeting Support for Enhanced Well-Being and Equity for Game Developers
Ron Eglash, eglash@umich.edu ; Audrey Bennett; Mark Guzdial; Lionel Robert	FW-HTF-R: Race, Gender and Class Equity in the Future of Work: Automation for the Artisanal Economy
Divya Srinivasan, sriniv5@clermson.edu ; Georgia T. Chao, chaog@usf.edu	FW-HTF-T/Collaborative Research: Occupational Exoskeletons and the Human-Technology Partnership: Achieving Scale and Integration into the Future of Work
Hao Su, hsu4@ncsu.edu ; Chen Feng, cfeng@nyu.edu ; Ludovic Righetti; Vikram Kapila; Douglas Kruse, dkruse@smlr.rutgers.edu ; Lisa Schur; Hazen-Alle Johnson; Mason Ameri	W-HTF-RL: Collaborative Research: Improving the Future of Retail and Warehouse Workers with Upper Limb Disabilities via Perceptive and Adaptive Soft Wearable Robots
Motahhare Eslami, meslami@andrew.cmu.edu ; John Zimmerma	FW-HTF-P: Combining Human and Machine Intelligence to Improve Equity and Fairness in the Work of Municipal, Public Sector Decision Making



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster theme: **Knowledge Workers**

Names and contact	Project title and poster link
T. Shipley, tshipley@temple.edu ; A. Davatzes; A. Hsieh; B. Tikoff	Collaborative Research: FW-HTF: Integrating Cognitive Science and Intelligent Systems to Enhance Geoscience Practice
Andrew Kun, Linda Boyle, John Lee, john.d.lee@wisc.edu ; Raffaella Sadun; Orit Schaer	FW-HTF: Collaborative Research: The Next Mobile Office: Safe and Productive Work in Automated Vehicles
Xiangyang Guan; Michelle Song; Ekin Ugurel; Irfan Batur; Abbie Dirks; Claudia Sanson; Cynthia Chen; Ram Pendyala; Brad Allenby; Steve Polzin; David Swindell; Chaoyue Zhao	FW-HTF-P/Collaborative Research: Designing a Market-based Optimization Tool for the Future of Work: Balancing Remote Work and Community Vitality in Post-COVID American Cities
Jason Wiese; A.J. Metz; Jacqueline Chen; Vivek Srikumar	FW-HTF-P: Managing Time and Work-Life Boundaries in Support of Future Remote Workers
Priyadarshini R. Pennathur, Priyadarshini-pennathur@uiowa.edu ; Arunkumar Pennathur; Andrew Kusiak; Beth Livingston; Valerie Boksa	FW-HTF-P: Office Work in the AI Age
Sarah Chasins, schasins@berkeley.edu ; Joe Hellerstein; Erin Kerrison; Niloufar Salehi; Aditya Parameswaran, adityagp@berkeley.edu	FW-HTF-R: Human-Machine Teaming for Effective Data Work at Scale: Upskilling Defense Lawyers Working with Police and Court Process Data
Soumya Ray, sray@case.edu ; M. Cenk Cavusoglu, mcc14@case.edu ; Brooke Macnamara, bnm24@case.edu ; Amy Wilson-Delfosse, axw41@case.edu ; Philip Smith, smith.131@osu.edu ; Elizabeth Krupinski, ekrupin@emory.edu	FW-HTF-R: Impact of Artificial Intelligence Aids on Clinical Skill Acquisition, Atrophy and Adaptation
Toni Antonucci, tca@umich.edu ; Tom Armstrong	FW-HTF-P: Connectivity and the Future of Remote Work
Gloria Mark; Stephen Mandt; Sidney D'Mello; Aaron Striegel; Thomas Breideband, tbreideb@uci.edu	Collaborative Research: FW-HTF-RM: Intelligent Facilitation for Teams of the Future via Longitudinal Sensing in Context



2022 Annual PI/Co-PI Meeting

Future of Work at the Human-Technology Frontier Big Idea Program

Poster themes: **Manufacturing & Material Handling**

Names and contact	Project title and poster link
Karthik Ramani, ramani@purdue.edu	FW-HTF: Collaborative Research: Pre-Skilling Workers, Understanding Labor Force Implications and Designing Future Factory Human-Robot Workflows Using a Physical Simulation Platform
Reuben Burch, burch@ise.msstate.edu	FW-HTF-P: Addressing the Wearable Technology Acceptance Gap for Industrial Workers Performing Repetitive Motion Work
Sheng-Jen Hsieh, hsieh@tamu.edu	FW-HTF-P: Design of Tools and Technologies for Industry 4.0 Manufacturing Work
Theresa Castor, castor@uwp.edu ; Melissa Gregg; Peggy James	FW-HTF-P: Essential Decision-Making Skills for the Future Workforce in Smart Manufacturing
Natasha Banerjee	FW-HTF-P: Investigating Acceptability in the Workforce of Collaborative Robots that Provide and Request Assistance on an As-Needed Basis
Moghaddam; Jona; Marsella; Modestino; Wilson;	FW-HTF-R: Fostering Learning and Adaptability of Future Manufacturing Workers with Intelligent Extended Reality
Berk Calli, bcalli@wpi.edu ; Aaron Dollar; Kate Saenko; Vitaly Ablavsky; Marian Chertow; Brian Scassellati; Barbara Reck; Jacob Whitehill; Amy Wrzesniewski	FW-HTF-RL: Collaborative Research: Shared Autonomy for the Dull, Dirty, and Dangerous: Exploring Division of Labor for Humans and Robots to Transform the Recycling Sorting Industry
Minghui Zheng, mhzheng@buffalo.edu ; Xiao Liang; Sara Behdad, sarabehdad@ufl.edu ; Boyi Hu; Gulcan Onel	FW-HTF-RL: Collaborative Research: The Future of Remanufacturing: Human-Robot Collaboration for Disassembly of End-of-Use Products
Taskin Padir, t.padir@northeastern.edu ; John Basl, j.basl@northeastern.edu ; Kemi Jona, k.jona@northeastern.edu ; Kristian Kloeckl, k.kloeckl@northeastern.edu ; Alicia Sasser-Modestino, a.modestino@northeastern.edu	FW-HTF-RL: Co-worker Robots to Impact Seafood Processing (CRISP): Designs, Tools and Methods for Enhanced Worker Experience
H. Keathley, Heather.Keathley@ucf.edu ; W. Karwowski; A. Vela; P. Vela	FW-HTF-RM: Collaborative Research: Supervise It! Optimizing Intelligent Robot Integration Through Feedback to Workers and Supervisors
Robert Radwin, rradwin@wisc.edu ; Bilge Mutlu; Shiyu Zhou; Lindsay Jacobs; Timothy Smeeding	FW-HTF Across Work Domains (sri.com)