Andrew Kuznetsov, NRP

Resume

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Human Computer Interaction Institute, Carnegie Mellon University, 5000 Forbes Avenue Pittsburgh, PA.
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Research Interests

Collaboration {Systems, Interactions, Evaluation}, **Sensemaking** {Knowledge Capture, Synthesis, Reuse}, **Human-Computer Interaction & Organizational Behavior Theory** {Technical Systems, Mixed Methods, User/Team Studies}

Ongoing Projects

My work aims to blur the line between individual sensemaking and distributed cognition (such as teamwork & crowdsourcing), with applications in healthcare, personal information management, and organizational knowledge sharing.

- **Care Coordination AI and Evaluation** - Embodied AI, LLM KB Finetuning, AR Interfaces, Simulation and Team Studies.
- **Cognitive Scaffolding** - AI-Support Interfaces for Everyday Diagnosis and Troubleshooting Tasks.
- **Multi-Agent AI Tools** - Summarization, Visualisation of Generative AI Designs & Documents (RAG).
- **In-The-Wild Information Foraging Patterns** (In Review) Collection and Analysis of Real-World Exploratory Searches.

Education

2018–Present	Ph.D. Human-Computer Interaction	School of Computer Science, Carnegie Mellon University *Mentors: Aniket Kittur (HCII), Anita Woolley (Tepper; OBT)*
2023	NRP Nationally Registered Paramedic	Center for Emergency Medicine, University of Pittsburgh
2014	B.S. Computer Science	University of Illinois Urbana-Champaign *Research Advisors: Aditya Parameswaran, Brian Bailey*

Professional Experience

May 2023 – August 2023	**Research Scientist Intern**, HCI & Visualization Lab, Autodesk Research. Exploration of interfaces and techniques to support architects in summarizing, visualizing, and exploring generative AI designs for sustainable architecture. Ongoing collaboration.
Sept 2023 – Current	**Search Planner**, Appalachian Search Rescue Conference (ASRC) Remote Support Corps Development of technologies to plan and support searches of lost persons within mountainous terrain using geospatial and coordination platforms. Ongoing.
May 2022 – Current	**Research Lead**, Robust Teaming Group, Carnegie Mellon University. Leading the 'Robust Teaming' project with Prof. Anita Woolley, part of the NSF AI-CARING AI institute. The project explores the creation of a human-centered AI system that can assist a caregiving network in learning a person's needs, preferences, and adapting as those change over time. I lead the development of AI agents, simulations, experiments, evaluations, user studies, and interviews for supporting caregiver coordination and task delegation within home healthcare networks. I also lead our collaboration with the Health Home Living (HHL) lab at University of Pittsburgh for the field testing of our AI systems. Ongoing.
May 2020 – Sept 2020	**Research Scientist Intern**, Product Design and Strategy Team, Wikimedia Foundation. Exploration of how Wikipedia readers trust article content and the design of trust-related platform interventions. Results published in Proceedings of ACM CHI 2022.
Aug 2018 – Current	**Emergency Medical Technician**, Foxwall EMS, CMU EMS. >1,500 clinical and field hours as a medical professional trained in basic life support (BLS) and advanced life support (ALS).
May 2016 – Aug 2016	**Software Engineering Intern**, Core Infrastructure Team, Amazon Mechanical Turk. Prototyped systems to create 'Human Computation' workflows/chains at Amazon MTurk. Project grew to be connected to two Amazon 'human-in-the-loop' (HITL) products; Amazon SageMaker Ground Truth and Amazon Augmented AI (Amazon A2I).

Programming Languages

Prototyping {Python, Javascript/React, HTML/CSS, Unity}, **Backend Development** {Python, Java, C++, C#}, **Analytics** {iPython/Pandas, R, SQL}, **Deep Learning Frameworks** {PyTorch}

Awards and Honors

2023 Pittsburgh Emergency Medicine Foundation (PEMF) Paramedic Education Scholarship
2018 Social Alpha Foundation Impact Summit Blockchain for Social Good Grant
2017 Office of Undergraduate Research (OUR) Research Support Grant (RSG)
2017 Illinois Scholars Undergraduate Research (ISUR) Scholar Grant
2015 Illinois Scholars Undergraduate Research (ISUR) Scholar Grant
2015 University of Illinois Engineering Visionary Scholarship

Academic Reviewing

ACM IMWUT	2024
ACM CHI LBW	2024 (AC)
ACM CHI	2021, 2022, 2023, 2024
ACM UIST	2022
ACM CSCW	2022, 2023, 2024
ACM DIS	2023

Publications

11. **Kuznetsov, A.**, Chao, P., Dishop, C. R., Brown, A. S., Kittur, A., Woolley, A. W. (2024). The Collaborative Caring Virtual Testbed: An Online Caregiving Simulation for Validating Collective Intelligence Interventions for Asynchronous Care Teams [In Preparation].

10. **Kuznetsov, A.**, Matejka, J., Aseniero, B. (2024). Wikis and Warnings: Grounding Generative Design with Multi-Level Sensemaking Support. [In Preparation].

9. **Kuznetsov, A.**, Liu, M., Kittur, A. (2023). Tasks, Time, and Tools: Quantifying Online Sensemaking Through a Survey-based Study. [Under review].

8. Dishop, C. R., Brown, A. S., **Kuznetsov, A.**, Chao, P., Woolley, A. W. (2024). Cooling the warmth of received help: Effects of delegating to an artificial intelligence tool on felt obligations and reciprocity. [In Preparation].

7. Brown, A. S., Dishop, C. R., **Kuznetsov, A.**, Chao, P., Woolley, A. W. (2023). Beyond efficiency: Trust, AI, and surprise in knowledge work environments. [Under review].

6. **Kuznetsov, A.**, Chang, J., Hahn, N., Rachatasumrit, N., Breneisen, B., Coupland, J, Kittur, A. (2022, October). Fuse: In-Situ sensemaking Support in the Browser. In The 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22).

5. Liu, M., **Kuznetsov, A.**, Kim, Y., Chang, J., Kittur, A., Myers, B. Brad A. (2022, October). Wigglite: Low-cost Information Collection and Triage. In The 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22).

4. **Kuznetsov, A.**, Novotny, M., Klein, J., Saez-Trumper, D., Kittur, A., (2022, April). Templates and Trust-o-meters: Towards a widely deployable indicator of trust in Wikipedia. In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems.

3. Reinhart, A., Brooks, L., Jahja, M., Rumack, A., Tang, J., Agrawal, S., ... **Kuznetsov, A.**, ... , Tibshirani, R. J. (2021). An open repository of real-time COVID-19 indicators. Proceedings of the National Academy of Sciences, 118(51).

2. Hastings, E. M., Alamri, A., **Kuznetsov, A.**, Pisarczyk, C., Karahalios, K., Marinov, D., Bailey, B. P. (2020, April). LIFT: Integrating Stakeholder Voices into Algorithmic Team Formation. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (pp. 1-13).

1. Jain, A., Seo, J. Y., Goel, K., **Kuznetsov, A.**, Parameswaran, A., Sundaram, H. (2016). It's just a matter of perspective (s): Crowd-Powered Consensus Organization of Corpora. arXiv preprint arXiv:1601.02034.

Select Non-Academic Projects

Outside of full-stack web development, I maintain a wide range of prototyping experiences, including mobile development, AR/VR , hardware and IoT devices, as well as some more esoteric stuff like Solidity (Ethereum). More projects and details can be found on andrewkuz.net.

• **Left 4 Virtual Reality** (2015) - Re-purposing Consumer Toys as VR Input Devices
Nerf toy // Wii controller // Microsoft Kinect // Hardware flex sensors // Particle, Arduino micro-controller board.

• **StreamPoint** (2016) - Prototype Presentation Software to Generate Real-time Slides During Presentation
Presentation web app // Bing API // iOS Mobile application // NLP // Voice-to-Text.

• **Search3** (2018) - Prototype Data Network for Search and Rescue Robotics
Ethereum smart contract // Computer vision embeddings // Camera-equipped drone // iOS mobile application.

• **PhD Positions Dashboard** (2023) - Deployed Multi-Agent System for Collecting CS/HCI PhD Openings, ∼15k yearly users.
Multi-agent LLM orchestration // Google sheets API // Image-to-text